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DETROIT

A National Newspaper for Every Branch of the Industry

Automotive Daily News

CARS · SHOP EQUIPMENT · TRUCKS · AVIATION · PARTS · ACCESSORIES · TIRES

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Fleet Sales by Chevrolet, Both Cars and Trucks, Set New Nine Months' Record

H. J. Klinger Reports Dollar Volume of Business Done With Large Fleet Users Tops Any Similar Period

Detroit, Mich., Oct. 21.—During the first nine months of this year quantity purchases of Chevrolet six cars and trucks by large national fleet users exceeded any previous like period of record, H. J. Klinger, vice-president and general sales manager of the Chevrolet Motor Company, announced here today.

Despite a general price reduction throughout the Chevrolet line in early spring, the dollar volume of business done with large fleet users in the first three quarters of this year also exceeded any previous nine-month period, Mr. Klingler said.

Unit sales this year to September 30 went approximately 2 per cent. ahead of the first nine months of last year, 13 per cent. ahead of the same period of 1930 and 75 per cent. ahead of the boom year of 1929.

In every one of the past five years, however—since Chevrolet became a leading volume producer—the total fleet business done by the company has been consistently upward, and the gain this year over the same period of last year was achieved in the face of a general decline in the industry amounting to more than 40 per cent., Mr. Klingler pointed out.

The performance of Chevrolet in the fleet market indicates the extent to which national organizations are going to maintain their standard of delivery service to consumers. Fleets represent capital investments, and many of Chevrolet's sales went to replace old equipment which, in the judgment of the fleet operators, offered a smaller return after maintenance and operating costs than do new Chevrolet Sixes. This factor promises a greatly enlarged general market when the private car owner follows the lead of the fleet operator in replacing obsolete equipment.

Mr. Klingler asserted that Chevrolet is constantly increasing its percentage of total available fleet business due to the experience of large fleet operators after competitive tests of various makes of cars on a cost-per-mile basis.

MILWAUKEE MEETING COMPLETES OCTOBER PROGRAM OF N. S. P. A.

Detroit, Oct. 21.—The series of four regional jebber conferences sponsored by the National Standard Parts Association during the month of October was concluded by the best attended meeting of the series held in the Hotel Pfister, Milwaukee, this week.

Approximately 140 jobber executives and manufacturers' representatives participated in the one-day meeting, the local arrangements for which were handled jointly by the Wisconsin Standard Parts Association and the Illinois Standard Parts Association.

F. S. Heimbach, H. & E. Standard Auto Parts, Chicago, chairman of the meeting, presented E. P. Chalfant, executive vice-president of the N. S. P. A., as guest chairman. A stirring address of welcome was made by Mayor Daniel Hohn of Milwaukee.

Speakers on the day's program were: A. E. Pouliot, National Bushing & Parts Company, Minneapolis, Minn.; Rance Loop, Modern Auto Parts Company, Sheboygan, Wis.; V. C. Anderson, Motor & Axle Parts Service, Inc., Chicago, Ill.; Clarence A. Bahls, H. M. Bahls Hardware Company, Inc., Lafayette, Ind.; A.

(Continued on Page 2)

WHITE ANNOUNCES NEW URBAN BUS

Cleveland, O., Oct. 21.—The White Motor Company of this city has announced that it has developed a new type of street car motor coach for use in urban transportation. This unit will probably be ready for delivery during the early part of 1933.

The new White coach differs considerably from present bus models. It will be powered with a new twelve-cylinder engine of the horizontally opposed type. This power plant will be cushioned on rubber and will be mounted under the floor and outside the body of the vehicle. The coach has a normal capacity of forty-four seated passengers.

N. Y. WILLYS SALES EXCEED SEPTEMBER

New York, Oct. 21.—The Willys-Overland branch in this city showed a satisfactory increase in sales during the month of September, A. W. Pickett, the manager of the branch,

(Continued on Page 10)

Detroit Production Lags Behind Retail Sales in Closing Quarter

Plymouth Announcement Interests Industry; Various Manufacturers Place Steel Orders

By CHRIS SINSABAUGH

Detroit, Oct. 21.—Automobile production in this center of such activity has just about touched bottom for 1932. In spite of which condition the fact remains that retail sales refuse to call it a year. Sales in the field are not proceeding quite as briskly as they were some weeks ago, but sales managers look cheerful as they read reports from their retailers. While retail sales lag behind the levels held last year, they are none the less sufficient in volume to intensify the trend to reduction of dealer stocks to the lowest figure in the modern history of the industry. Automobile merchants will carry very little over to compete with the demand of their 1933 offerings.

And now that Walter Chrysler has made his interesting announcement regarding the new Plymouth, we may perhaps be permitted to whisper that behind the scenes here in Detroit plans are maturing in every plan for 1933 developments. We'll be hearing something soon.

In the meantime Plymouth has hit the 1933 trail in earnest. It is probable that within the next few days actual production on the new six will start and it is expected that several thousand will be shipped before the end of the month, which may give the reader an idea of when Plymouth expects to make its formal announcement and display its new models.

There's no questioning the favorable reception of the Plymouth six by Chrysler, Dodge and De Soto dealers, although they have not seen one or been told the prices. Still, they have so much confidence in Walter P. Chrysler that on Thursday of this week Sales Manager

(Continued on Page 9)

CONTINENTAL MOTORS SEEKS STOCKHOLDERS VIEWS ON POWER, ETC.

Detroit, Oct. 21.—To obtain a cross section of public opinion on what is desired in motor cars as well as to arouse the interest of stockholders in its new product, Continental Motors has mailed a questionnaire to its 30,000 shareholders asking their views on such subjects as price, number of cylinders, whether high speed or gasoline economy is preferable, top speed, and numerous others pertaining to the various modern improvements which add to the price of the car, such as ride regulators, oversize tires, safety glass, free wheeling, etc.

In letter to stockholders accompanying the questionnaire, W. R. Angell, president, said: "Ever since the decided decline in the demand for motors manifested itself, the management has been endeavoring to find some product in the manufacture of which the large plants and equipment of the company could profitably be employed. The search covered foreign countries as well as the United States and hun-

(Continued on Page 10)

JOHNSON TO MANAGE AUBURN-CHICAGO CO.

Chicago, Ill., Oct. 21.—Lloyd Johnson has been named vice-president and general manager of the Auburn-Chicago Company, Auburn and Cord distributors for Cook county and territory. The announcement was made by N. E. McDarby, vice-president in charge of sales for the Auburn Automobile Company. John-

(Continued on Page 7)

T. D. PRATT OF M.T.A. SAYS TRUCKS SHARE TOTAL TAX BURDEN

Poughkeepsie, N. Y., Oct. 21.—Branding the publicity given by the railroads on the necessity of truck regulations as "cleverly directed but untruthful propoganda which has been accepted by the reading public as gospel," T. D. Platt, general manager of the Motor Truck Association of America, in a speech before a group of commercial and transportation interests here last night, denied that the trucks were not paying their share of highway expenses and were, therefore, subsidized by the people of the states and nation.

In controverting these claims, Mr. Pratt presented an extensive array of figures. He stated, in part: "Motor trucks, which represent 13 per cent. of the registrations of motor vehicles in the United States, pay 33 per cent. of the motor vehicle fees, including the amount collected from gas taxes. These figures," the speaker held, "should settle for all time the statement that motor

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Highlights in the News of the Week

Marmon returns to the fine car field exclusively with a 1933 sixteen-cylinder model in eight body styles, priced $4,825 to $5,175, representing reductions of from $875 to $925 from the previous prices.

* * *

Toledo automobile dealers, spurred by sales gains, launch an aggressive campaign for the coming year.

* * *

Rudolph Hokanson retires as Nash distributor in Milwaukee, Wis.

* * *

Employment shows in mator industries 3.6 per cent. gain in September over August. Payrolls climb 2.6 per cent.

* * *

Ransom E. Olds may enter refrigerator field.

* * *

Wisconsin truck makers report increased sales.

* * *

Railroads delay store door delivery plan in New York city.

* * *

New car sales reports from key cities of San Antonio, Tex.; San Francisco, Cal., and St. Paul, Minn., show increases in October over September. Cleveland and Louisville show declines.

* * *

Macauley sees 2,000,000 motor vehicles junked this year, as against a total production of 1,500,000 units.

* * *

Air-tired tractor announced by Allis-Chalmers.

* * *

Supreme Court of the United States sets date for hearing in Texas truck regulation constitutionality.

* * *

Graham-Paige stockholders to vote on capital change October 24.

* * *

Gas Craft Club formed in New York to aid visitors at New York Show.

Initial shipments of the new Franklin Olympic made by the H. H. Franklin Manufacturing Company this week.

* * *

Stock deposits assure White-Studebaker merger. A. R. Erskine of Studebaker reports that 90 per cent. of White stock was deposited under the Studebaker offer before the time expired October 18. Two-thirds of the shares would have been sufficient.

* * *

Parts, accessory and shop equipment makers will draw for space at the National Automobile Shows in New York January 7 to 14, and Chicago January 28 to February 4, at the N. A. C. C. offices, 366 Madison Ave., New York city, on October 26.

* * *

De Soto reports continued gains in retail sales in October.

* * *

Lincoln had sharp sales rise in first ten days of this month.

* * *

Bendix announces four new truck and bus devices.

* * *

September truck sales report from thirty-one states and the District of Columbia indicate 3 per cent. gain over August.

* * *

Roy H. Faulkner is named president of the Pierce-Arrow Sales Corporation and vice-president of the Pierce-Arrow Motor Car Company, with headquarters in Buffalo, N. Y.

* * *

Murray Corporation recalls 1,200 workers.

* * *

J. S. Tritle, vice-president of Westinghouse Electric and Manufacturing Company, named president of the National Electrical Manufacturers Association.

* * *

Truck makers and rail men discuss plans for transportation regulation that is fair to all.

HORNING INSPIRES N. Y. S. A. E. WITH RESEARCH TALK

New York, Oct. 21.—In an inspired and stimulating address entitled "Research," Harry L. Horning, president and general manager of the Waukesha Motor Company, told some 225 members and guests of the metropolitan section of the Society of Automotive Engineers at its meeting last evening what research means and how to get the most good from it.

Mr. Horning, who is a past-president of the society and a leader in its research activities, called research a system or reviewing all the facts on a subject for the purpose of separating the essential from the non-essential. It consists in gathering the facts, arranging them in

(Continued on Page 12)

CONFERENCE BOARD REPORTS TRADE GAINS

New York, Oct. 21.—The conference of statisticians, in session here under the auspices of the National Conference Board, reports that considerable increase in business activity throughout the country was shown during September over August. The statement was made after

(Continued on Page 7)

ONE YEAR MAKES BIG CHANGES IN SALES RANKING

New York, Oct. 21.—What a difference a year makes! Looking back to September, 1931, and comparing sales standing in that with the same month this year we find some rather sharp changes in sales position. Limiting this comparison to the ten makes leading in thirty-five states and the District of Columbia this year, three makes have moved up among the ten leaders whose names last year were considerably further down the ladder.

All of these are in the lower priced brackets which gives a tip off on what motor enthusiasts considered first in their purchases this year. Price, of necessity, seems to have played a big part.

The three makes which have moved into the ranks of the first ten leaders this year are alphabetically, De Soto, Essex and Rockne. Rockne of course is a new comer in the field and, perhaps, should be credited with the best showing for that reason. Rockne, we might say, moved from nothing last year to tenth place in the sales for September this year in the states so far reporting.

Essex, however, through the impetus of the new Terraplane, moved from 13th place in September last year to 4th place in September this year. Willys-Overland moved up from 12th place in September last year to 7th place this year. De Soto moved from 11th place last year to 9th place this year. Plymouth held its own in third position, with Ford and Chevrolet changing places with Ford first and Chevrolet second. Oldsmobile moved up two rounds from 10th place last year to 8th place this year. Buick, among the higher priced models, made a good showing holding 6th position against 5th place last year.

The sales standing of the first ten makes in thirty-five states and the District of Columbia this year is as follows:

Place	Make	No. of Sales
1	Ford	20,226
2	Chevrolet	15,489
3	Plymouth	6,151
4	Essex	2,570
5	Pontiac	2,227
6	Buick	1,800
7	Willys-Overland	1,417
8	Oldsmobile	1,389
9	De Soto	1,361
10	Rockne	1,322

The sales standing of the first ten leading makes in the same thirty-five states and the District of Columbia in 1931 is as follows:

Place	Make	No. of Sales
1	Chevrolet	25,917
2	Ford	24,536
3	Plymouth	14,153
4	Pontiac	4,173
5	Buick	4,047
6	Chrysler	3,026
7	Dodge	2,509
8	Studebaker	2,345
9	Nash	2,270
10	Oldsmobile	2,087

The standing of the three makes in September of last year which have moved into the ranks of the first ten leaders this year, but which were absent from the ranks last year, is as follows:

Place 1931	Place 1932	Make	No. of Sales 1931	No. of Sales 1932
11	9	De Soto	1,816	1,361
12	7	Willys-Overland	1,780	1,417
13	4	Essex	1,651	2,570
*	10	Rockne	*...	1,322

*Rockne not in production last year.

It should be noted that while several makes have thus improved their relative standing in the sales ladder, Essex and Rockne were the only two makes in the leading ten which actually showed an increase in sales in September this year over September last year.

FEDERAL AID ROADS

Washington, Oct. 21.—The volume of Federal-aid road construction under way September 30 again advanced over the figure for the end of the previous month, according to a tabulation of the status of such construction made public October 20 by the Bureau of Public Roads, Department of Agriculture.

The estimated total cost of the projects under construction September 30 was $260,943,185, the bureau said, compared with $242,175,216 August 31.

TRUSCON STEEL BUILDS NEW TYPE OF KNOCK DOWN SERVICE STATION

Youngstown, O., Oct. 21. — The Truscon Steel Company of this city has announced a new type of automotive service station to be known as the "auto-servitorium."

The "auto-servitorium" is a building constructed entirely of steel and glass. Much of the outside area consists of glass held in enameled steel panels. All the parts, steel frame, glass sections, steel roof and wall panels are standardized, thereby simplifying erection.

The idea is to give a light and convenient service station unit, which can be taken down and moved to a new location and re-erected, quickly and easily. It may also be readily enlarged as the service station business grows. Several of these auto-servitoriums are now in use in this section of Ohio and are reported to be entirely satisfactory.

MILWAUKEE MEETING COMPLETES OCTOBER PROGRAM OF N. S. P. A.

(Continued from Page 1)

H. Packer, Motor Service Magazine, Chicago, Ill.; C. M. Burgess, Burgess-Norton Manufacturing Company, Geneva, Ill.; P. R. McGinn, Green Bay Auto Parts Company, Green Bay, Wis., and A. R. Sandt, director of marketing research, N. S. P. A., Detroit, Mich.

At the conclusion of the afternoon session, Clarence Bahls, H. M. Bahls Hardware Co., Lafayette, Ind., and Jack M. Heffelfinger, Standard Unit Parts Corp., Chicago, were elected chairman and secretary respectively for next year's regional conference.

A banquet and entertainment in the evening concluded the conference.

The Milwaukee conference was preceded on October 10 by the third meeting of the series at the Adolphus Hotel, Dallas, Tex., which resulted in the formation of a new regional jobbers organization under the name of Automotive Wholesalers of Texas, replacing the Texas Automotive Jobbers Association.

Officers of the new organization are: John H. Muller, Fort Worth, president; Harry Gree, Dallas, vice-president; Harry Archenhold, Fort Worth, secretary-treasurer; Joe Eagan, Dallas; Oscar J. Koepke, Corpus Christi; Frank H. Floyd, Waco, and Sam Suravitz, Houston, directors.

Nineteen charter members were enrolled at the meeting and dues were set at $25.00 per year. The new organization, according to a resolution passed, is unaffiliated with any national association.

The meeting on the morning of the 10th was opened by V. W. Olson, Automotive Service Co., Minneapolis, Minn., president of the N. S. P. A., who acted as guest chairman, later turning the gavel over to John Muller, Fort Worth Wheel & Rim Co., Fort Worth, Tex., who presided.

The speakers on the day's program were : M. J. Lineham, Milton Gaines, J. S. Connell, A. A. Ways, Dan H. Rogers, Frank W. Lynn, Joe Eagan, Francis Bowen, A. R. Sandt, N. S. P. A. director of marketing research, and Oscar J. Koepke.

NEW FISK OFFER REPORTED READY

New York, Oct. 21.—Despite the fact that Fisk Rubber Company organization committee, of which Orrin G. Wood is chairman, declared its amended plan operative on Tuesday, it was indicated yesterday that the committee of Fisk security holders, headed by Ferdinand Eberstadt, will make a new offer to the Fisk receivers, probably next week.

The Fisk company went into receivership on January 3, 1931. The reorganization plan declared operative by the committee headed by Mr. Wood provides for large cash payments to bond and debenture holders for the exchange of stock in two new companies for the remaining portions of bonds and debentures not liquidated by cash payments. The new companies will acquire properties, equipment, etc., of the old Fisk organization.

Are You A Judge Of News?

You are, whether you are a salesman in a town of 5,000 or a sales manager of 10,000 dealers. You CAN judge the news.

No one has to tell you which of two mediums prints news first. Pick up the two papers and check the news items. You can also judge for yourself which paper serves better in other respects by looking over the products themselves.

Don't buy a line of advertising space until you have looked over the "products" your advertising is going in. Which prints the news first, which one prints the most, which one spreads the news quicker, which covers the industry better? When a story breaks why does the industry say, "Did you read that in Automotive Daily News?" Because Automotive Daily News gives better news service all through the year than any paper in the industry. It has over 6 readers per copy and gets $12 per year per subscription because it is worth that much, and more.

As Automotive News spreads the news, so it can spread your advertising message. Judge for yourself—get all papers together—find out what the publisher gives his readers before you decide what to give the publisher.

Automotive Daily News

H. A. TARANTOUS, *Bus. Mgr.*
350 HUDSON STREET, N. Y. C.

DETROIT OFFICE:
Geo. M. Slocum, Manager
Fisher Building, Detroit, Mich.

WESTERN OFFICE:
Willard R. Cotton, Manager
333 No. Michigan Ave., Chicago, Ill.

SPARKS *from* DETROIT

Klingler Looks Ahead
* * *
A Definite Turn
* * *
With Grace & Holiday
* * *
Chrysler Give

Chris Sinsabaugh—Detroit Editor

SITTING across the desk from Harry Klingler, Chevrolet's sales generalissimo, you have a hard time getting blue about things in general or this industry in particular. Remembering that the Chevrolet sales chief has the reputation for spending more time on the road than anyone else in this business—he has to, to keep in touch with his 10,000 dealers—this typewriter thumper popped in on him just as he had settled down for one of his periodic stops at the central office. Klingler has been on the road most of the working days this year, to all parts of the country, recently in the South and Central West, so, like Paddy's flea, he's been hard to catch at his desk.

* * *

"THE MOST IMPORTANT difference you notice is the new attitude of the dealers," he started off. "They've kept up a bold front for three years, but there's a big difference between optimism based on hope and optimism based on confidence. That's the new change you sense.

"They kept their heads up, when everything ahead as far as they could see was downhill. Now they're looking uphill; they can see daylight. They believe firming of commodity prices will go further, and that other primary factors of recovery are upward. But the biggest thing in their changed attitude—and the best booster of optimism I know—is the unseasonal sales increase of August and September, which put extra dollars in their cash tills.

"Another thing, you don't hear the grumbling about the depression on the road that you used to. We are getting accustomed to doing business on the present scale. We've lost most of our 1929 illusions.

"I honestly believe that many of our dealers are in a healthier condition today, and are better off, than they were three years ago. You sense the change the instant you step into their stores and shops. They are doing business on a sounder basis. Out in the Middle West last week I saw dealerships and offices operated on remarkably high levels of efficiency. You can't watch developments like that without feeling good over the long-term pull."

* * *

Others than Klingler are noting the pick-up. Take the railroads for instance. There's the Michigan Central executive our own George Mertz Slocum bumped into the other night, who declared that for the first time since 1929 he can say without making it sound like propaganda that there has been a most decided and definite turn to better times noticed in the last thirty days.

The commercial salesmen are getting out on the road again. Evidence of this is had in the fact that it is not unusual to have to add extra coaches going out of and coming into Detroit. Twice last week it was necessary to put on an extra sleeper to the Motor City, and it was commercial traffic that made this necessary.

* * *

WE'RE BREAKING UP this train of thought about business recovery in general to tell the customers that Walter S. McLain has taken on the job of publicity director for Grace & Holliday, who from now on will handle the advertising of the new car Continental Motors is grooming for an early debut. As we read the tea leaves, this means that Messrs. Angell, Rockelman and Krohn, out at the plant, are getting ready to say something.

This chap McLain, as Lennen & Mitchell's Detroit representative, has been responsible for Hupmobile publicity for the past four years. He was broken to harness in advertising by Ward Canaday and comes from good old newspaper stock—Detroit Free Press and the Scripps-Howard dailies.

* * *

THE COMMUNITY CHEST drive is on in Detroit and the response from the automobile industry is helping a lot. The Chrysler Corporatoin is one of the first to kick in, and it is proof of the good year the corporation has had that the contribution has been $30,000, $5,000 more than the year before.

* * *

AARON DE ROY, Hudson-Essex distributor, was not bluffing when he said he would pay a prospect in cash the difference between a down payment and the appraisal when such a difference existed. This week alone he has signed six checks ranging from $125 to $400.

Retail Salesmen—This Is Your Page

This department is devoted to the interests of the retail sales division of the industry. Salesmen, this is your department. Automotive Daily News wants you to get something from this department that will help you in your work on the firing line. It wants you to pass on your own experiences, success, failures to help your brother salesmen. Send in your story in the form of a letter, or even a postal card, and let us get it ready for publication. Your achievement or your mistake may help another salesmen to make sales or avoid errors that cost you commissions.

Dealers read this page. Give us the benefit of your reactions on these problems that affect the work of your salesmen, the men on the firing line, the men who bring home the bacon or don't.

HIT THE LINE AND GET THE DEMONSTRATION

There is a splendid spirit of fight in this automotive industry of ours, even when the going is most discouraging. The fall of 1932, the end, we hope, of scraping the bottom of the worst depression this generation has ever seen, finds the automobile sales departments hitting the line with more vigor even that in the boom days of 1928 and 1929.

The point of attack in most of the campaigns now being waged against buying reluctance is the demonstration. Sales managers know that if enough demonstrations are secured old man average is bound to bring the contracts.

Pierce-Arrow has been conducting such a campaign with every salesman pledged to make so many contacts and bring in so many demonstrations a day during the contest period.

B-O-P, otherwise Buick, Oldsmobile and Pontiac, has been and still is conducting a Hit-the-Line compaign, appropriate to the football season. The first half of this sales game is just over and how well the B-O-P team played may be judged from the fact that it made 120.5 per cent. of its quota. In the Hit-the-Line News, sent out to contestants, B-O-P has this to say about the real meaning of demonstrations.

The "demonstrate" signal should be called into play at every opportunity. It will carry the prospect down the field. And do not hesitate to "Ask for the order." Place this early and often and earn a quick touchdown.

Keep on carrying the ball. If you crash into those stock objections, block these kicks with the ammunition furnished you. Try the "Hidden ball" play by offering the buy the prospect's car before he tries to sell it to you. And always try for the point after the touchdown through the sale of the used car. Many a game has been won by this single point margin, and many higher prizes will be secured that way in the Hit-the-Line contest.

All set, fellows. The first half has been glorious. Now for a smashing third and fourth quarter and the finest prizes for every salesman.

Fight 'em. Fight 'em. Fight 'em.

Automotive Daily News carried full accounts of the Rockne

(Continued on Page 12)

Used Car Selling Prices

Automotive Daily News in this department offers for the benefit of its dealer and salesmen readers a compilation of prices at which used cars have within the past few days been offered for sale by reputable dealers in various cities. These prices will vary on condition and from other causes. They are not presented as being the exact prices at which these models should be sold. but simply as the prices at which they have been offered for sale by dealers in the various cities. Other cities will appear in subsequent issues of this paper.

Los Angeles

	1931	1930	1929	1928
Auburn	645-795	335-395	195	....
Buick (Light)	....	295t	....	185-250cp
Buick (Medium)	....	545	....	....
Buick (Big)	765-885	625	550	....
Cadillac	1595	1095-1195	....	545-595
Chevrolet	345r-525d	285cp-345	295ccp	145cp
Chrysler 6	....	425-545cp	325	295cp
Chrysler 8	685cp-745cp	....	....	....
Chrysler Imperial	....	....	395r	....
Cord	840-935	695	....	....
De Soto 6	565cp-575	345	....	....
De Soto 8	625cp-635	325	....	....
De Vaux	420cp	....	....	....
Dodge 6	665	295-435	....	....
Essex	435	365	....	....
Ford	325c-395cp	265r-295cp	165cp	....
Graham 6	495-595	450	....	....
Hudson	525cp-625b	395-495	295cp-375t	....
Hupmobile 6	....	....	335-345r	....
Hupmobile 8	635	545	425cp	....
La Salle	....	725cp-875cp	545-695	285t-495
Marmon	....	495	....	145
Nash 6	525cp	465	245cp-295	....
Oakland 6	595d	....	245-285	....
Oakland 8	491	....	....	....
Oldsmobile	525cp-625r	345c	295c	....
Packard	....	695-1295	585-935	....
Plymouth	295-365	185	160	....
Pontiac	465c-545	389	225-275	....
Reo	....	495	....	....
Studebaker 6	595cp	....	....	....
Studebaker Dictator	550-785	....	....	195cp
Studebaker Commander	....	350-445	....	....
Studebaker President	595	425-495d	345-395	....
Stutz	....	445b	165	....
Willys-Overland	495	....	....	....
Willys-Knight	....	395cp	195r-285	....

d-De luxe. c-Coach. cp-Coupe. ccp-Convertible coupe. b-Brougham. t-Touring. r-Roadster. Where no distinguishing mark follows the price the car is a sedan.

Dealer Activities

UTICA, N. Y.

Valley Motors Sales, Inc., long established at 614 Cornelia St., has moved into its new home at Oriskany Street West at the corner of Cornelia Street, where it will continue as Utica headquarters for Auburn and Cord.

* * *

JAMESTOWN, N. Y.

The Washington Street Garage Nash and Franklin dealership, with headquarters at 317 Washington St., one of the oldest retail automotive sales and service organizations in western New York, has been taken over by L. L. Pray. Joseph L. Frick, proprietor of the business for the past twentyt-two years, has retired and will spend the winter in Florida. Mr. Pray, the new proprietor, was formerly general service manager of the Kettle Motor Sales Company here.

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EVANSVILLE, IND.

L. R. Cooke identified for several years with his brother as automobile dealer in Louisville has bought out the McHenry-Stark Motor Company, Chevrolet dealer, 116 Northwest 1st St., and will operate as L. R. Cooke, Chevrolet, Inc. The McHenry-Stark Motor Company will operate a used car business at 113 Southeast 5th St. under the management of E. R. McHenry, vice-president.

* * *

CAMDEN, N. J.

Rockne Motors Corporation announces the appointment of Ingram Motor Sales, 1490 Haddon Ave., to handle Rockne cars in Camden and vicinity. John S. Ingram is head of the local company.

* * *

PIKEVILLE, TENN.

R. E. Swafford of the Vaughn-Swafford Chevrolet Company, local Chevrolet dealership, states that his business has been improving for the last sixty days and he feels that the situation is getting better.

* * *

HEREFORD, TEX.

Homer Grizzle, G. W. Brumely and Hazel A. Grizzle have incorporated the Grizzle Chevrolet Company, local Chevrolet dealership, with capital stock of $6,500.

* * *

ROCKFORD, ILL.

The D. R. F. Chevrolet Company has been reorganized as the Recht-Freelich Chevrolet Company and incorporated under that name. Victor H. Recht is president and Maurice L. Freelich, who was secretary-treasurer of the former company, retains that office in the new corporation. The new owners came here three years ago and took over the Chevrolet dealership in Winnebago county. Mr. Recht will head the sales organization, and Mr. Freelich the office administration. George Bethke is sales manager.

* * *

EAST LIVERPOOL, O.

W. B. Douglas Auto Sales Company, which recently took over the former Breers-Hank Motor Company, Ford distributors, has been incorporated and authorized to issue 250 shares of no par stock. The incorporators are William B. Douglas and Irene O. Douglas of Wellsville, Francis H. Lang and W. B. Hill of East Liverpool.

* * *

SPRINGFIELD, ILL.

A meeting of Chevrolet Motor Company dealers of central Illinois in the Leland Hotel was attended by 225 persons from the sales and service departments of the organization from thirty cities. General business conditions and business prospects during the last quarter of 1932 were discussed.

* * *

BOONE, IA.

The Ogden Motor Company, of which C. H. Moffitt is head, has purchased the Crowe Auto Company in this city, Ford dealer, and Mr. Moffitt has assumed management of the Boone sales and service department. He announced that the Ogden and Boone firms will be incorporated. The Crowe auto salesroom has been used for sales and service twenty-one years.

"I'M MIGHTY GLAD
THE CARS I SELL HAVE
SAFETY GLASS"

"Nine out of ten prospects want it, and if I couldn't promise Safety Glass *without waiting*, Safety Glass *without* an excessive extra charge, I'd see many a sale walk right out the door again.

"Sometime ago, Libbey-Owens-Ford published the results of a survey in which 150,000 persons were questioned. It showed that 85% of those responding, in choosing between two cars of equal performance and reputation, would select the car with Safety Glass *even if it cost a little more*. That was the first warning that we *had to have* Safety Glass if we expected our sales to hold up. Then, a little later, a great publishing company conducted a survey which checked those results almost exactly. That was *certainly* the handwriting on the wall for ordinary glass. My personal experience bears out those figures. People *want* Safety Glass . . . and, believe me, with competition as tough as it is, I'm mighty glad I have that extra sales advantage."

L-O-F Safety Glass is used by Packard, Graham, Studebaker, Franklin, Reo, Willys, Willys-Knight, Ford, Cadillac, La Salle, Lincoln and Nash.

LIBBEY-OWENS-FORD
SAFETY GLASS

LIBBEY-OWENS-FORD GLASS COMPANY, TOLEDO, OHIO, *manufacturers of Highest Quality Flat Drawn Window Glass, Polished Plate Glass and Safety Glass; also distributors of Figured and Wire Glass manufactured by the Blue Ridge Glass Corporation of Kingsport, Tenn.*

Automotive Daily News

"Of, By and For the Entire Automotive Industry"

Published Every Day Except Sunday, Monday and Holidays, and Tuesday When a Holiday Falls on Monday.

AUTOMOTIVE DAILY NEWS PUBLISHING CORPORATION
350 Hudson St., New York, N. Y.

O. J. Elder, President. H. A. Tarantous, Vice-President. Alexander Johnston, Secretary.
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MEMBER A. B. C.

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SATURDAY, OCTOBER 22, 1932

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Statistical Department (registrations and specifications), P. J. Robas, statistician. Engineering Department, A. Benson Carleton, technical editor. Merchandising Department, Charles S. Zack, editor. Art Department, John Bauerfeld, director.

Detroit Bureau, Chris Sinsabaugh, editor, 427-8 Fisher Building, Detroit, Mich. Telephone Trinity 2-8500. Contributing editor, John C. Wetmore.

The Appraisal

ON a recent occasion a sales executive who is among the leaders in the automotive field made the remark that: "More sales that ought to be closed are lost in the appraisal than any other way."

We questioned the dictum and this executive explained: "Most sales are lost because the salesman doesn't go after them at all. By that I mean that most salesmen could make more sales if they made more contacts; in other words, worked harder and actually went after more sales. But after a prospect has been fairly lined up; after he is interested in the job under consideration, the appraisal is the most frequent stumbling block. This is so whatever way you consider it.

"In the ultimate analysis, I consider that a sale has been lost if the dealer allows so high an appraisal that there is no profit in selling the new car. On the other hand, many appraisals are so made that the prospect goes away and buys elsewhere when, with proper diplomacy and skillful handling, he could be turned into a customer. No, sir, the appraisal is a ticklish part of making an actual sale and the dealer who hasn't learned to handle it properly is losing a lot of business he ought to get."

To begin with, no appraisal should ever be made until the prospect has been shown the new car, has been "sold" on it in so far as the ability of the salesmen can do that trick and has been induced to take a ride in the vehicle.

Some dealers make an inflexible rule that no appraisal ever shall be given unless the prospect has taken a demonstration in the new car. The man who walks into a salesroom and asks first: "What will you allow me on that bus out there at the curb?" usually means a profitless sale, unless he is handled with skill. When a salesman learns how to handle one of these traders, he has won his spurs.

The fact that the appraisal makes the sale of a new car a matter of both buying and selling puts more of a burden on the automobile merchant than is borne in most other industries.

To be able to appraise the actual selling value of a used car accurately, the dealer must obviously know what is the current price of that particular make and model in his local market. He must know enough about mechanics to have a definite idea of what it will cost him to put the vehicle in condition for ready disposal. In larger dealerships, obviously an appraiser is employed for this specific purpose. But in many cases the dealer or the sales manager must do his own appraising.

Various dealers have various ways of arriving at the prices which they will allow for trade-ins. The used car marketing books are extremely valuable in determining appraisal with their listings of "buying prices." The prices presented in these books are for cars in reasonable condition. The dealer must know what it will cost him to fit the vehicles for ready sale and whether the price that will thus be indicated can be readily obtained.

Many dealers make a practice of checking prices given in the used car books against the "offered prices" as they find these in their local newspapers. This, too, is an excellent method of setting the appraisal. This newspaper has for some time been publishing tables showing the offered prices of used cars in various cities by makes and yearly models.

Obviously there will be other factors operating in different cities, which must be taken into account by the man who makes appraisals. Local conditions will cause variations in the degree of prosperity or lack of it in different places. Some cities, for instance, are largely dependent on a single industry for a large part of their pay roll. If that particular industry is prosperous, the dealer may look for generous buying, but if it lags, he has to watch his step in loading up with merchandise, new or used.

From all this it is obvious that every dealer must pay particular attention to the appraisal, not only the method followed in offering it, but in compiling the data on which he bases his allowances.

TRUCK AND RAIL LEADERS SEE HOPE IN JOINT MEETINGS

New York, Oct. 21.—Following the first joint meeting of railway and motor truck leaders yesterday at the National Automobile Chamber of Commerce, 366 Madison Ave., in an effort to work out a program of uniform legislation that will protect the essential interests of all parties the following statement was issued:

"This is a joint conference committee of interests representing the railways and the highway users, the purpose of which is to outline a program for solution of the existing problems with reference to transportation as between that on the railways and that on the highways.

"There are six members of the joint conference committee from each of the two interests. Those representative of highway transportation have their authority from what is known as the National Highway Users' Conference (Washington, D. C.) Embraced in their membership are such varied interests as those of the motor car manufacturers, the oil and gasoline companies, the National Chain Stores' Association, the National Association of Motor Bus Operators, the American Automobile Association, in behalf of the private motor car operator, and the general agricultural field.

"The railways are similarly represented by six members who have been appointed by the Association of Railway Executives, and have been chosen with the thought of having representation from each particular section of the country.

"It is hoped that the ultimate findings of this joint conference committee may be such as to command unqualified indorsement and general support and serve as a basis for the enactment of uniform legislation, both Federal and state, looking to an amicable adjustment of prevailing elements of dissatisfaction in the transport situation on the railways and the highways, as well as to provide for fair and reasonable regulation of both means of transportation in the future."

NATIONAL HARDWARE GROUP ELECTS WHIPPLE

Atlantic City, N. J., Oct. 21.—The conventions of the National Hardware Association and the American Hardware Manufacturers Association closed here with election of officers.

C. J. Whipple of Chicago was elected president of the wholesalers' organization to succeed G. Sumner Wilson of Boston. Other officers elected were: First vice-president, Brace Hayden, San Francisco; second vice-president, L. M. Stratton, Memphis, Tenn.; secretary-treasurer, George A. Fernley, Philladelphia; assistant secretary-treasurer, Percy F. Hord, Philadelphia.

The manufacturers re-elected A. E. Aluerson of Rockland, Ill., as president. Other officers elected were: Vice-presidents, J. P. McKinney, Jr., Pittsburgh, Pa.; R. G. Thompson, New York; A. P. Schaick, Bridegport, Conn.; secretary-treasurer, Char'' F. Rockwell, New York.

COMING EVENTS

NOVEMBER

11-19—Glasgow, Scotland. Motor Show.
14-16—Atlanta, Ga. National Tire Dealers Association
15-17—Houston, Tex. American Petroleum Institute Meeting

DECEMBER

2- 3—Detroit. National Standard Parts Association Convention.
5—New Orleans, La. Association of Asphalt Paving Technicologists.
5- 9—New York. Annual Meeting A. S M. E.
5-10—New York. Power and Mechanics Engineering Exposition.
5-10—Detroit. Third Annual Joint Trade Show, National Standard Parts Association and Motor and Equipment Manufacturers' Association, Convention Hall.

JANUARY

7-14—New York City. National Automobile Show. Grand Central Palace.
7-15—Los Angeles, Cal. Los Angeles Motor Car Dealers' Association, twentieth annual show.
16-23—Detroit. Highway and Building Congress
28-Feb. 4—Chicago. National Automobile Show, Coliseum.

FEBRUARY

11-18—Kansas City, Mo. Kansas City Motor Car Dealers' Show
27-Mar. 14—New York City. Chemical Exposition, Grand Central Palace.

APRIL

20-21—Cleveland, O. National Petroleum Association.

Institutional Advertising Campaign of Louisville, Ky., Dealers Attracts Attention

Twenty-one Weeks of Steady Ad Copy in One Newspaper Brings Results; Customers Comment Favorably on Campaign

By A. W. WILLIAMS

The Louisville Automobile Dealers Association and some of its members have recived a number of inquiries from dealers in various cities for information regarding a campaign used in the spring wherein twenty-one Louisville dealers cooperated in an advertising campaign that ran for twenty-one weeks, appearing every Saturday afternoon in the Herald Post, using space five columns wide, or ten inches in width, by fifteen inches deep, hammering away steadily on the theory that for best service the owner should take his car to the dealer who sold it to him. Across the bottom of each of the advertisements appeared in heavy black type the line: "For expert service take your car to the dealer who sold it to you!"

Of course this is what might be termed institutional advertising, and direct benefits of it are hard to check, as results are more or less intangible, but it is felt by a number of the dealers that the advertising brought some results, in that owners who had not been seen in their service departments in some time, re-appeared, and in some cases commented on the advertising, and admitted that they had been patronizing suburban repair shops, corner garages, etc., but had awakened to the fact that the service they had been securing wasn't especially satisfactory, in many cases having been as a result of laziness, or because the neighborhood repair shop was handy, or they had felt that account of convenience it should be partonized.

Have You Ever Seen A "Hammer" Auto Mechan
GUARANTEED
SATISFACTION
It Is True—
Grease Is Grease and Oil Is Oil
but—
Confidence
—and the part it plays in all of your motoring enjoyment
MILLIONS OF DOLLARS WASTED!
Because Of Mechanical Inefficiency
UNITED MOTORS CORPORATION

Prince Wells, dean of the Kentucky dealers, operating the Prince Wells Company, pioneer Nash distributors; John R. Boyd, United Motors, handling Dodge and Plymouth, and some of the others have expressed themselves as well satisfied that the advertising was worth while, and was not a waste of money by any means. Of course it came at a time when a lot of people are trying to economize in every way, some foolishly. Again it was and is felt that it would have been well if the dealers had continued pounding away on the same thought, as well as using other newspapers, in order to reach more owners.

The series of advertisements as used in Louisville had previously been used in Nashville, Tenn. W. H. House, automotive editor of the Herald Post, secured the Nashville series. These were rewritten and revamped by House and J. Garland Lea, secretary, Louisville Automobile Dealers Association, before they were used here.

The tweny-one dealers co-operating in Louisville in financing the cost of the campaign had their names listed at the bottom of each piece of copy used. They were—Fidelity Motor Company, (Hudson-Essex); Leyman Motor Company, (Buick); Louisville Motors Company, (Ford); Packard Louisville Motor Company; Pickrell Motor Company, (Austin-Durant); Reo Spalding Company; Schwartz, Clifford & Scott, (Ford); Standard Auto Company, (Cadillac-Oldsmobile); Studebaker Sales Company of Kentucky; Stultz Motor Company, (Marmon); Summers Herrman Company, (Ford); United Motors Company, (Dodge-Plymouth); Universal Car Company, (Ford); Weir Motor Company, (Chrysler-Plymouth); Prince Wells Company, (Nash); Bacon Pence Company (Willys - Willys - Knight); Hite D. Bowman Company, (Pierce Arrow); Monarch Auto Company, (Pontiac); Broadway Motor Sales Company, (Chevrolet); Ditto-Johnson Motor Company, (Ford); Edwards Motors Company, (Auburn-Cord). In each appearance of the advertising the names listed were shifted, so that no one concern would have any advantage in position of listing.

Each of the series was an argument on why the dealer who sold the car to the owner originally was better equipped to service the car, through personal interest in its performance, factory parts, investment in special equipment that is missing in the ordinary repair shop skilled or trained mechanics, of the factory-trained type, taught to handle every operation in the best possible way, and far more familiar with one car than many; safety for the owner and his family; money wasted through mechanical inefficiency; cars in the junk heap at 30,000 miles which should double or triple that mileage if properly serviced; savings of money in having work properly done when and as needed, making your money give you a plus, rather than a minus service; risking investments of $500 to $5,000 to the unskilled, etc.

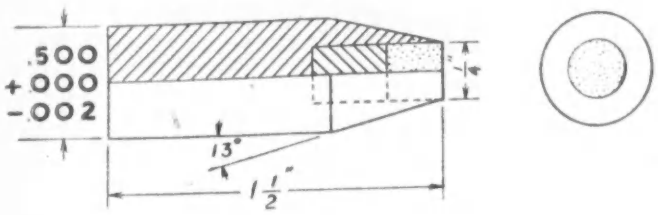
It was pointed out in one of the series that it represented an important message to 63,000 owners in Louisville and Jefferson county.

One of the series was headed, "Have You Ever Seen a 'Hammer' Auto Mechanic"? dealing with the mechanic who hammers a muffler that is loose so that it will appear

(Continued on Page 7)

Production--Engineering--Factory

Diamond Impregnated Tool



Cross section of Carboloy Truing tool inserted in typical holder. Dotted section is diamond impregnated, tungsten carbide matrix.

Announcement of a new type of truing tool for finish dressing grinding wheels has been made by Carboloy Company, Inc., Detroit, Mich., manufacturers of Carboloy cemented carbide metal cutting tools.

This new truing tool consists of a matrix impregnated with small, crushed diamonds, which are distributed uniformly throughout the matrix, providing an ample number of cutting points at each new surface reached during the life of the tool. Chief among the advantages said to be found in this truing tool are (1) low initial investment cost; (2) requires no further setting or mounting; (3) may be used economically on same grinder and same sized wheel throughout its entire life; (4) requires no special adaptors, and has no moving parts to adjust, repair or replace; (5) is small, compact and fits into any standard holder for hand or machine grinding.

The range of wheel sizes and types on which the Carboloy Truing Tool has been successfully used covers sizes up to 36 inches diameter by 2 inches wide and "M" in hardness. On centerless grinding wheels, sizes up to 20 inches diameter by 6 inches wide can also be finished dressed economically.

During the time which has elapsed since its commercial introduction these truing tools have been used with satisfactory results on wheels for the grinding of crankshafts, camshafts, pistons, piston pins, tappets, armature shafts, automotive and aeronautical valves and many other types of hardened miscellaneous parts. Complete descriptive literature on the Carboloy Truing Tool may be obtained upon request to the manufacturer.

HOW HEAT AFFECTS THE SCALING OF STEELS

(Second Installment)

Another portion of the investigation deals with the scaling of steel at heat-treated temperatures. The report on this section was made by Prof. Clair Upthegrove, who is associated with the Department of Chemical Engineering at the University of Michigan, and D. W. Murphy. The authors of this report point out that much of the steel produced annually requires a heat treatment to produce the desired qualities in the finished product. With the exception of a few steels most heat treatments are accomplished in the temperature range of 1,000 to 2,000 degrees Fahr. (540 to 1,095 degrees Cent.). Consequently the problem of the action of various atmospheres on steel arises. The principal effects of atmospheres on steel at these temperatures are those of decarburization and scaling. Other extracts from the report follow:

Scaling, in addition to its effect on decarburization, has a direct bearing upon many of the items entering into the cost of heat treatment. There is, of course, the intrinsic value of the metal converted to scale, which is, however, rather small in comparison with other effects directly attributable to scaling. The fact that oxidation occurs, requires the designer of a part to specify a certain tolerance in the dimensions prior to heat treating to compensate for the effect of scaling. Final machining of heat treated parts is thus made necessary to remove the excess metal which adds directly to the cost of the product. Furthermore, adhering bits of scale are the frequent cause of soft spots or poor hardening penetration. These are perhaps only a few of the ways in which scaling effects the cost of heat treatment, but they are sufficient to illustrate the importance of this problem.

For the past two years, the committee on Industrial Gas Research of the American Gas Association has sponsored a program of research to bring to light more of the facts surrounding the problem of scaling. In this paper the results of a portion of the research are presented.

The methods followed in this investigation, which have aimed at a thorough study of the factors influencing scaling in the temperature range 1,000 to 2,000 degrees Fahr. (540-1,095 degrees Cent.), are in general quite similar to those used in studies of scaling at forging temperatures. The samples were heated in an electric tube furnace which contained a long, glazed porcelain tube, approximately two inches in inside diameter.

Samples were two and one-half inches long and five-eighths inch in diameter. The analysis of the steel used in this research is as follows: C, 0.18 to 0.20 per cent; Mn, 0.45 to 0.48 per cent.; Si, 0.17 to 0.22 per cent.; S, 0.03 per cent. or less; P, 0.021 per cent. or less.

As a result of the tests various theories have been advanced and certain conclusions drawn. These may be summarized as follows:

(Continued on Page 6)

SOLVING A VALVE PROBLEM

The Ruggles-Klingemann Manufacturing Company recently encountered an interesting problem in a cloth finishing plant. It was desired to control the water supply and soap solution entering the soapy water tanks in such a way that the proper proportion of soap solution would be added to the water. Further, it was desired to completely mix the soapy water solution without resorting to mechanical agitation.

Float valves had been employed in this service, but they did not suffice, inasmuch as their incremental flow characteristic and the fact that they filled during the drawing-off period caused considerable waste, because of the addition of excess soap solution. Then, too, it was practically impossible to proportion the valves.

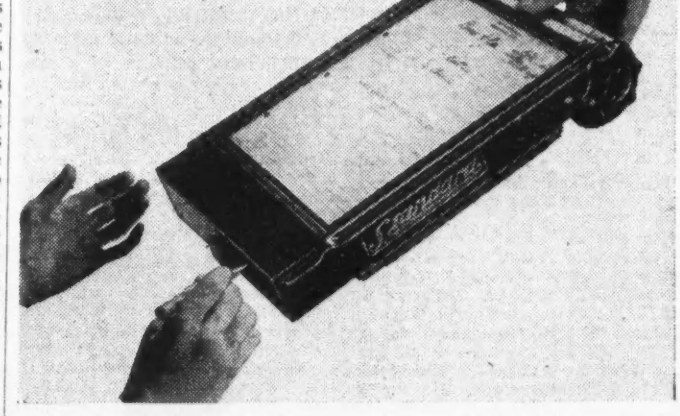
The Ruggles-Klingemann Company, in solving the problem, employed General Electric Thrustor Valves in conjunction with General Electric float switches. To insure economy in operation, it was absolutely essential that the valves be tight. The tanks were open tanks and a leaky valve would not only cause overflow and waste during the period when there was no demand on the tanks, but also would vary the consistency of the soapy water solution, injuring the results of the entire process.

The installation of Thrustor valves made it possible to open both the soap solution valve and the water supply valve simultaneously, when the desired low level in the tank was reached. After opening automatically, the Thrustor valves allow measured amounts of water and soap solution to flow into the tanks throughout the entire filling process. Thorough mixing of the soapy water solution has been accomplished by placing the inlet valves below water level, inasmuch as it was found that the water supply, feeding into the tanks, caused sufficient agitation to thoroughly mix the solution.

INSERTER FOR SPLIT VALVE SPRING KEEPERS

The Zim Manufacturing Company, Chicago, is placing on the market its new inserter for split valve spring keepers. This tool is designed as a universal device for inserting all sizes of split and horseshoe type keepers. It is stated that the device handles the largest as easily as the smallest on any type engine. It is operated with one hand entirely and will work either straight in or on an angle and is so narrow that no valves are too close together to prevent its use.

Autographic Register



The Standard Register Company, Dayton, O., is putting out a new autographic register which will make as many as six handwritten records at one time. The device is small in size and light in weight so that it can be carried from place to place. The latest model of this register is known as the Tablet model and is designed for use in the shop, on the truck or in the warehouse. Records can with this machine be made at the job in the service station or anywhere else that convenience dictates.

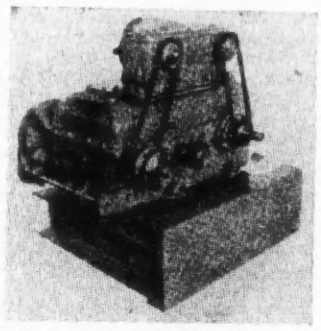
Variable Speed Transmission

The Link Belt Company has developed a variable speed transmission with automatic time cycle control.

Of the many types of speed control problems involving the use of variable speed transmission units, some stand out as being of particular interest for one reason or another. Such an installation, involving automatice time cycle control and unusually close speed control, is illustrated.

The problem was to obtain a stepless straight-line speed decrease of a machine shaft, under a combination of variables. First, the starting speed was to be selective within given limits; second, the speed decrease was to be selective between 1 per cent. and 18 per cent.; third, the time was to be selective between one hour and twenty-four hours, and once a setting was made, indefinite repetition of results was required.

As may be imagined, quite a few calculations were necessary to obtain the desired results; and a trial installation was made last year. Of special interest in connection with such a mechanism are the precise control of speed, the facility with which either a decrease or an increase in speed may be obtained, and the fact that special speed curves are possible. The unit illustrated (the second one built) is a Link-Belt P. I. V. gear, with special speed reduction unit mounted on top and connected by roller chain drives to the gear's constant speed shaft (at right) and to its control screw (at left), the complete mechanism being mounted on a fabricated steel base for bolting to the frame of the machine to be operated.



The constant speed shaft of the gear is direct-connected through a coupling, and operates at 751 r. p. m. The variable speed or output shaft has a starting speed in the cycle selected of from 500 to 1,100 r. p. m. A silent chain drive connects this shaft to the main shaft of the machine controlled.

To obtain the speed changes required, the control screw must turn .00594 r. p. m. under maximum conditions, and .000408 r. p. m. under minimum conditions; and it, therefore, became necessary to apply the aforesaid special reduction unit to the normal P. I. V. Gear unit.

This special reduction unit has a fixed ratio of 360,000 to 1, but the change gears encased on the back of it, permit a maximum ratio of 1,380,000 to 1, and a minimum ratio of 94,737 to 1. When the control screw of the gear is operating at minimum speed, the total reduction from the constant speed shaft of the gear to the control screw is 1,840,000.

When a desired combination and setting have been determined and must be repeated, a special indicator and limit stop are used. From the far end of the control screw a gear drive operates the indicator shaft, on which is a traveling indicator pointing to a scale of the width of the gear box. The locking nut can be set to permit an exact return manually to the starting speed.

The double hand wheel is used not only to obtain the starting position required, but also for resetting to repeat a cycle. While the gear and timing mechanism are operating, the hand wheel clutch is disengaged from the roller chain wheel in order to make the return setting. One hand wheel is for ordinary adjustment, and the second one for vernier or fine adjustment.

A further function incorporated in the hand wheel is a series of pins and springs so set as to slip, in case the gear is permitted to run beyond its cycle and the limit of adjustment or movement of the control mechanism and parts of the gear.

A selection chart enables the user to determine the ratio of change gears to employ on the special reducer unit, for the necessary combination of speed, percentage of speed change and time.

CHICAGO SECTION S. A. E. APPOINTS EMPLOYMENT GROUP

Chicago, Oct. 21.—Formation of an employment committee was today announced by Leonard V. Newton, chairman of the Chicago section of the Society of Automotive Engineers. This is said to be the first move of its kind by any local section of the national society.

Serving as chairman of the committee is Robert T. Hendrickson, president of the Hendrickson Motor Truck Company and a director of the Chicago Automobile Trade Association. Other members are C. A. Peirce, vice-president in charge of engineering and production of the Diamond-T Motor Car Company; Leo Huff, transportation engineer of the Pure Oil Company, and Harold Nutt, chief engineer of the Borg & Beck Company. The committee's first report is scheduled to be made at the next meeting of the section November 1. Curtis C. Stewart, chairman of the technical meetings and papers committee and manager of the Cartage Exchange of Chicago, has secured as speaker K. T. Winslow of the Waukesha Motor Company, Waukesha, Wis. Mr. Winslow will discuss the subject of "Internal Combustion Engines Burning Kerosene and Distillants." The meeting will be held at the Hotel Sherman.

Gen. Elec. Exhibit at Century of Progress

The "House of Magic," a spectacular section of the General Electric Research Laboratory in Schenectady, will be moved to Chicago for the Century of Progress Exposition, as the outstanding feature of the G. E. exhibit. In the auditorium, to be constructed as part of the exhibit, lectures and demonstrations of the wonders of electrical science will be presented to visitors. Discoveries and developments that emanated from the research laboratories and that speeded the progress of the electrical industry will be exhibited and explained.

The space to be occupied by the company will be the largest awarded to any one manufacturer in the great exposition buildings, it has been announced by F. H. Gale, manager of conventions and exhibits of the General Electric Company. In 9,000 square feet of space in the circular hall of the Electricity Building, in a setting designed by Raymond Hood, General Electric will concentrate its entire display of electrical apparatus.

1932 OIL PRODUCTION 1,300,000,000 BARRELS

New York, Oct. 21.—Preliminary figures indicate that the world's production of petroleum in 1932 wil total approximately 1,300,000,000 barrels, or about 69,000,000 less than in 1931.

A decline of 61,000,000 barrels in the production of American field was chiefly reponsible for the decrease of the world's output. The production of the Russian, Rumanian and Persian fields which increased approximately 42,000,000 barrels in 1931 will this year show an aggregate loss of about 11,000,000 barrels.

CONFERENCE BOARD REPORTS TRADE GAINS

(Continued from Page 1)

compilation of statistics furnished by more than 10,000 industrial companies on their September business.

The report indicates that the physical volume of production in September increased over that of August by more than a normal seasonal amount. The movement, however, was constricted rather than general in character.

The conference notes the fact that September production by the automotive industry was contracted rather more than the usual seasonal amount. On the other hand, iron and steel showed a gain when September production usually remains even with that of August, or drops.

FINANCIAL NEWS

GAS PRICES

New York, Oct. 21.—Retail gasoline price levels, which were reduced sharply along the Atlantic seaboard in September, were partially restored yesterday when leading marketing companies posted a 1-cent advance in both service station and tank wagon prices in New Jersey, Maryland, Virginia, West Virginia, North and South Carolina and the District of Columbia. In oil circles it was forecast that the higher price will be reflected promptly in the metropolitan area of New York, in Pennsylvania and throughout New England.

In September Standard Oil Company of New Jersey posted reductions of 3 cents a gallon in retail gasoline prices throughout its territory, with the exception of in New Jersey, where the cut amounted to 2 cents a gallon in both service station and tank wagon quotations. Retail prices for motor fuel were subsequently lowered in New York and New England, although to a less extent.

The price increase yesterday, which takes effect this morning, was initiated by Sinclair Refining Company, a subsidiary of Consolidated Oil Corporation, was met promptly by the Standard Oil Company of New Jersey and oil marketing subsidiaries of the Cities Service Company as well as by several other leading marketers.

STEEL

Washington, Oct. 21.—Representatives of the steel producers, at the hearing today before the Commissioner of Customs, Capt. F. X. A. Eble, presented charges that foreign steel is being dumped in this country at prices injurious to the American industry. From France, Belgium, Germany and Luxemburg, and that even Japan has begun to seek a market here for pig iron.

Tightening up of the anti-dumping regulations was urged by the steel men and their recommendations were taken under consideration by Capt. Eble.

CANADIAN DUTIES

Ottawa, Oct. 21.—Dumping duties against gasoline imported into Canada from the United States were canceled today in orders sent by the Department of National Revenue to customs collectors. Estimates were that the action meant a cut of 2 cents a gallon in the impost against United States gasoline. The tax now is 2½ cents a gallon.

BUSINESS INDEX

New York, Oct. 21.—Preliminary index of general business activity in the week ended October 15 was 54.8, compared with the revised index of 55.3 for the previous week, according to the Business Week.

ROLLS-ROYCE SALES SHOW IMPROVEMENT

Springfield, Mass., Oct. 21.—Sales of Rolls-Royce cars have improved this month, and between orders for new cars and the activity in the maintenance department the East Springfield works of Rolls-Royce of America, Inc., is quite busy at present. Operations cover five days a week, which is the standard working week for this concern. Orders now on the books will keep the plant running well for some time, according to Henry S. Keyes, treasurer and manager. Sales are well distributed over the New York area, the Middle West and the Pacific Coast area, he added.

MAJOR SPECIFICATIONS AND MECHANICAL DETAILS

Make and Model	Weight—5-P. Sedan	Wheel Base	Engine Make	Thermostat Used	Valve Arrangement	Cylinders	Bore and Stroke	Piston Disp.	Compression Ratio	Tax H. P.	Brake, H.P. and Peak R. P. M.	Pist. Make or Material	No. Main Br.	Oil Purifier	Fuel Cleaner	Carburetor	Air Cleaner
Auburn 8-100	3675	127-136	Lyc	Dole	L	8	3 x4¾	268.6	5.26	28.8	100@3400	*Alum	5	Pur	No	Str	AC
Auburn 12-160	4465	133	Lyc	Dole	HO	12	3⅛x4¼	391.1	5.50	46.8	160@3400	*Alum	4	Pur	Ste	Str	AC
Austin	§1150	75	Own	No	L	4	2.2 x3	45.6	5.10	7.80	13@3000	Alum	2	No	No	Til	No
Buick 32-50	3450	114	Own	Bish-Bab	O	8	2⅛x4¼	230.4	5.09	27.61	82@3200	CI	5	AC	AC	Mar	AC
Buick 32-60	3980	118	Own	Bish-Bab	O	8	3⅛x4⅝	272.6	5.03	30.02	95@3000	CI	5	AC	AC	Mar	AC
Buick 32-80	4450	126	Own	Bish-Bab	O	8	3⅛x5	344.8	4.80	35.12	113@3200	CI	5	AC	AC	Mar	AC
Buick 32-90	4565	134	Own	Bish-Bab	O	8	3⅛x5	344.8	4.80	35.12	113@3200	CI	5	AC	AC	Mar	AC
Cadillac 355 B	4885	134-140	Own	Har	L	8	3⅜x4⅛	353.0	5.38	36.4	115@3000	CI	3	AC	AC	Own	AC
Cadillac 370 B	5175	134-140	Own	Har	O	12	3⅛x4	368.0	5.30	46.9	135@3400	CI	4	Cuno	AC	DL	AC
Cadillac 452 B	5625	143-149	Own	Har	O	16	3 x4	452.0	5.36	57.5	165@3400	CI	5	Cuno	AC	DL	AC
Chevrolet	2770	109	Own	No	O	6	3⅛x3¾	194.0	2.50	26.3	60@3000	CI	3	No	Yes	Car	AC
Chrysler 6	3120	116	§Own	Yes	L	6	3¼x4½	223.9	5.35	25.35	82@3400	*Alum	4	Pur	Yes	*B&P	Yes
Chrysler 8	3860	125	§Own	Yes	L	8	3¼x4½	298.6	5.20	33.80	100@3400	*Alum	5	Pur	Yes	Str	Yes
Chrysler Imp. 8	——	135	§Own	Yes	L	8	3½x5	384.8	5.20	39.20	125@3200	*Alum	9	Pur	Yes	Str	Yes
Chrysler Imp. 8 cus.	——	146	§Own	Yes	L	8	3½x5	384.8	5.20	39.20	125@3200	*Alum	9	Pur	Yes	Str	Yes
Cord (Fr. Wh. D.)	4620	137½	Lyc	Dole	L	8	3¼x4½	298.6	5.25	33.8	115@3300	*Alum	5	Pur	AC	Sch	No
De Soto Six	3008	113	§Own	Yes	L	6	3¼x4¼	211.5	5.35	25.35	75@3400	*Alum	4	Pur	Yes	*B&B	Yes
De Vaux 6-80	2810	114	Con	Dole	L	6	3⅜x4	214.7	5.20	27.34	75@3600	Alum	4	—	Yes	Til	AC
Dodge Six D L	3084	114¼	§Own	Yes	L	6	3¼x4⅜	217.7	5.35	25.35	79@3400	*Alum	4	Pur	Yes	Car	Yes
Dodge Eight D K	3488	122	§Own	Yes	L	8	3¼x4¼	282.1	6.20	33.80	100@3400	*Alum	5	Pur	Yes	Str	Yes
Essex Terraplane	2400	106	Own	——	L	6	2⅞x4¾	193.0	5.80	20.7	70@3200	Alum	3	No	Yes	Car	Yes
Essex-Gr. Su. 6 Std.	2870	113	†Own	No	L	6	2⅞x4¾	193.0	5.50	20.7	70@3200	Alum	3	No	Ste	Mar	AC
Ford A	2357	106	Own	No	L	4	3⅞x4¼	200.5	4.60	24.03	50@2600	Alum	3	—	—	Zen	—
Ford V8	†2447	106	Own	No	L	8	3⅛x3¾	220.0	5.50	30.0	65@3400	Alum	3	—	—	DL	—
Franklin Olympic	3600	118	*Own	Yes	O	6	3½x4¾	274.0	5.12	29.4	100@3100	Alum	7	Yes	Yes	Str	AC
Franklin Series 16	——	132	*Own	Ful	O	6	3½x4¾	274.0	5.12	29.4	100@3100	*Alum	7	Pur	Yes	Str	Yes
Franklin V-12	——	144	*Own	Ful	O	12	3¾x4	398.0	5.12	50.8	150@3100	*Alum	7	Pur	Yes	Str	Yes
Graham 6 (1933)	——	118	Own	Yes	L	6	3¼x4½	224.0	6.50	25.35	80@3400	*Alum	7	No	AC	Sch	AC
Graham 6	3205	113	Own	Yes	L	6	3⅛x4½	207.0	5.45	23.4	70@3200	*Alum	7	No	AC	Sch	AC
Graham 8	3665	123	Own	Bish-Bab	L	8	3¼x4	245.4	6.50	31.25	90@3400	*Alum	5	AC	AC	DL	AC
Hudson Gr. 8 Std.	3270	119-126-132	†Own	No	L	8	3 x4½	254.1	5.80	28.8	101@3600	Alum	5	No	Ste	Mar	AC
Hupmobile 216	3115	116	Own	Bish-Bab	L	6	3⅜x4¼	228.1	5.00	27.34	75@3200	*Alum	4	**	Ste	Str	AC
Hupmobile 222	3580	122	Own	Bish-Bab	L	8	2⅞x4⅝	250.7	5.40	27.61	93@3200	Alum	5	Pur	Ste	Str	AC
Hupmobile 226	3755	126	Own	Bish-Bab	L	8	3⅛x4¾	279.9	5.47	30.10	103@3200	Alum	5	Pur	Ste	Str	AC
La Salle 345 B	4840	130-136	Own	Har	L	8	3⅜x4⅛	353.0	5.38	36.4	115@3000	CI	3	AC	AC	Own	AC
Lincoln V-8	5430	136	Own	Yes	L	8	3½x5	384.0	5.23	39.2	125@2900	Alum	5	No	AC	Str	AC
Lincoln V-12	5750	145	Own	Yes	L	12	3¼x4½	448.0	5.25	50.7	150@3400	Alum	7	No	AC	Str	AC
Marmon 8	3500	125	Own	Yes	L	8	3¼x4¾	315.2	5.50	33.8	125@3400	Alum	5	Flo	AC	Str	AC
Marmon 16	5360	145	Own	Pines	O	16	3⅛x4	490.8	5.75	62.5	200@3400	Alum	5	†	AC	Str	AC
Nash Big Six	3200	116	Own	Bish-Bab	L	6	3⅛x4⅜	201.3	5.10	23.4	70@3000	*Alum	7	Pur	AC	Str	AC
Nash Stand. Eight	3400	121	Own	Bish-Bab	L	8	3 x4⅜	247.4	5.10	28.8	85@3200	*Alum	9	Pur	AC	Str	AC
Nash Spec. Eight	3870	128	Own	Bish-Bab	O	8	3⅛x4¼	260.8	5.25	31.2	100@3400	*Alum	9	Pur	AC	Str	AC
Nash Adv. Eight	4350	133	Own	Bish-Bab	O	8	3⅜x4½	322.0	5.25	36.4	125@3600	*Alum	9	Pur	AC	Str	AC
Nash Ambas. Eight	4510	142	Own	Bish-Bab	O	8	3⅜x4½	322.0	5.25	36.4	125@3600	*Alum	9	Pur	AC	Str	AC
Oldsmobile F-32	3035	116½	Own	No	L	6	3⅛x4⅛	213.3	5.80	26.3	74@3200	CI	4	AC	AC	Str	AC
Oldsmobile L-32	3165	116½	Own	No	L	8	3 x4¼	240.3	5.90	28.8	87@3350	CI	5	AC	AC	Str	AC
Packard Twin Six	5635	142½-147½	Own	Yes	L	12	3⅛x4	445.5	6.00	56.7	160@3200	*Alum	4	Yes	Yes	Own	AC
Packard Std. 8	4570	130-137	Own	Yes	L	8	3⅛x5	320.0	6.00	32.5	110@3200	*Alum	9	Yes	Yes	Own	AC
Packard De L. 8	5045	142-147	Own	Yes	L	8	3½x5	384.8	6.00	39.2	135@3200	*Alum	9	Yes	Yes	Own	AC
Packard Light 8	4115	127¾	Own	Yes	L	8	3⅛x5	320.0	6.00	32.50	110@3200	*Alum	9	Yes	Yes	Own	AC
Pierce-Arrow 54	4819	137-142	Own	Pines	L	8	3½x4¾	366.0	5.05	39.2	125@3000	*Alum	9	Pur	Ste	Str	AC
Pierce-Arrow 52	5080	142-147	Own	Pines	L	12	3⅜x4	429.0	5.05	54.6	150@3200	*Alum	7	Pur	Ste	Str	AC
Pierce-Arrow 53	5395	137-142	Own	Pines	L	12	3¼x4	398.0	5.05	50.7	140@3200	*Alum	7	Pur	Ste	Str	AC
Plymouth	2875	112	§Own	No	L	4	3⅝x4¾	196.1	4.90	21.03	65@3000	Alum	3	Yes	AC	*B&B	Yes
Pontiac 6	2870	114	Own	Yes	L	6	3⅛x3⅞	200.0	5.10	26.3	65@3200	CI	3	No	AC	Mar	Yes
Pontiac V-8	3225	117	Own	Yes	H	8	3⅛x3⅜	251.0	5.20	37.8	85@3200	CI	3	No	AC	Mar	Yes
Reo Fly. Cloud "S"	3405	117	Own	Yes	L	6	3⅛x5	230.0	5.30	23.4	80@3200	Lo-Ex	7	Yes	Yes	Zen	Yes
Reo Royale Cust.	4650	135	Own	Pines	L	8	3⅜x5	358.0	5.30	36.48	125@3300	Alum	9	Han	AC	Sch	Own
Reo Royale	4375	131	Own	Pines	L	8	3⅜x5	358.0	5.30	36.48	125@3300	Alum	9	Han	AC	Sch	Own
Reo 8-25	4050	125	Own	Yes	L	8	3 x4¾	268.6	5.37	28.8	90@3300	*Alum	5	Han	V S	Sch	Un
Rockne 6-65	2595	110	Own	Dole	L	6	3⅛x4⅛	189.8	5.00	23.4	66@3200	CI	4	No	AC	Str	No
Rockne 6-75	3000	114	Own	Dole	L	6	3¼x4⅛	205.3	5.00	25.4	72@3200	CI	4	Own	AC	Str	No
Studebaker 6-55	3170	117	Own	Dole	L	6	3¼x4⅝	230.0	5.00	25.4	80@3200	CI	4	No	Ste	Str	No
Studebaker Dict. 62	3240	117	Own	Bish-Bab	L	8	3⅛x3¾	221.0	5.00	30.0	85@3200	CI	9	Pur	Ste	Str	AC
Studebaker Com. 71	3545	125	Own	Bish-Bab	L	8	3⅛x4¼	250.4	5.20	30.0	101@3200	*Alum	9	Pur	Ste	Str	AC
Studebaker Pres. 91	4260	135	Own	Dole	L	8	3½x4⅜	337.0	5.10	39.2	122@3200	*Alum	9	Han	Ste	Str	AM
Stutz LAA	4383	127½	Own	No	O	6	3⅜x4½	241.5	5.50	27.3	85@3150	*Alum	7	Pur	AC	Zen	UN
Stutz SV-16	4885	134½-145	Own	No	O	8	3⅜x4½	322.0	5.10	36.4	156@3900	*Alum	9	Pur	AC	Zen	AM
Stutz DV-32	*5281	134½-145	Own	Bish-Bab	O	8	3⅜x4½	322.0	5.50	36.4	113@3300	*Alum	9	Pur	Ste	Str	AC
Will.-Ov'land 6-90A	2814	113	Own	Yes	L	6	3¼x3⅞	193.0	5.26	25.35	65@3400	CI	4	No	AC	Til	Til
Will.-Ov'land 8-88A	3250	121	Own	Yes	L	8	3¼x4	245.4	5.26	31.25	80@3200	CI	5	No	AC	Til	AC
Willys-Knight 66E	3775	121	Own	Yes	K	6	3⅜x4¾	255.0	5.50	27.34	87@3200	*Alum	7	Pur	Til	Til	AC

HOW HEAT AFFECTS THE SCALING OF STEELS

(Continued from Page 5)

1. Increasing the velocity of the gas stream in the region below five feet per minute, except in the case of oxygen, increases the scaling losses. Above five feet per minute velocity has little effect upon scaling losses. In the case of oxygen, velocity has very little influence on scaling losses in any region.

2. Below 1300 degrees Fahr. (705 degrees Cent.) there is little difference in the scaling action of steam, carbon dioxide, oxygen and air. From 1300 to 1680 degrees Fahr. (705-915 degrees Cent.) water vapor is the most active oxidizing gas. From 1680 to 1980 degrees Fahr. (915-1080 degrees Cent.) oxygen is most active and above 1980 degrees Fahr. steam again becomes the most active. Air is more vigorous in scaling steel than is steam in the region 1720 to 1850 degrees Fahr. (935-1010 degrees Cent.). Carbon dioxide for the most part is less powerful than any of the other oxidizing gases.

3. The carbon dioxide temperature curve shows a maximum in the neighborhood of 1400 degrees Fahr. (760 degrees Cent.) and a minimum near 1,500 degrees Fahr. (815 degress Cent.). The air curve shows a maximum at 1800 degrees Fahr. (985 degrees Cent.) and a minimum at 2,000 degrees Fahr. (1,095 degrees Cent.). The oxygen curve shows a change of slope at 1,800 degrees Fahr. (985 degrees Cent.).

4. Blistering was first noticeable at 1,800 degrees Fahr. in air and oxygen and the decrease in rate of scaling observed in these curves at this temperature is attributed to blistering. This phenomenon may be explained on the basis of Pfeil's hypothesis concerning the inward diffusion of oxygen and the outward diffusion of iron. Blistering above 2,000 degrees Fahr. (1,095 degrees Cent.) apparently either does not occur or has but little influence on scaling rates.

5. The composition of the scale with respect to ferrous iron shows practically the same effects upon variation of temperature as do the scaling losses. Minima are characterized by low ferrous iron and maxima by high.

6. Increasing time increases the scaling losses, but does so at a decreasing rate except in the case of carbon dioxide. Carbon dioxide shows a practically constant rate of scaling.

7. Decreasing the partial pressure of oxygen, steam or carbon dioxide by mixture with nitrogen decreases scaling losses.

8. Adding water vapor in increasing amounts to carbon dioxide increases scaling losses until the atmosphere contains about 80 per cent. water vapor, after which there is no marked increase.

9. For temperatures up to 1,700 degrees Fahr. (925 degrees Cent.) gas-air combustion atmospheres show only a slight decrease in scaling losses as the carbon monoxide is increased from 4 to 17 per cent. The decrease in scaling from 0 to 4 per cent. carbon monoxide is quite decided, amounting to 50 per cent. or better.

10. At higher temperatures scaling losses are decreased rather uniformly by increasing the carbon monoxide content from 0 to 12 per cent. and beyond this very slowly.

11. Up to 1,700 degrees Fahr. (925 degrees Cent.) furnaces operating with 3 to 4 per cent. carbon monoxide should produce very little scale.

JOHNSON TO MANAGE AUBURN-CHICAGO CO.

(Continued from page 1)

son will assume his duties at once.

The new official comes to Chicago from San Francisco, where he was distributor for Auburn, Cord and Duesenberg for more than five years. He has been active in the Auburn-Cord distributor organization since 1925.

Johnson has spent nearly twenty-five years in the industry. Before going to California he was engaged in the motor car business in Indianapolis and Pittsburgh.

OF PRESENT AMERICAN PASSENGER CAR MODELS

Make and Model	Front End Drive	Ignition System	Gen. and Starter	Clutch	Transmission Make	Transmission Speeds	Transmission Type	Universals	Rear Axle	Ratio	Brakes	Steering Gear	Springs Rear	Spring Shackles	Chassis Lubric.	Tires
Auburn 8-100	Chain	Del-R	*Del-R-S	Long	D	3	SM-LGS-F	U	Col	*4.70	M	Ross	S 56¾	Own	Bijur	*17x5.50
Auburn 12-160	Link	Del-R	*Del-R-S	Long	D	3	SM-LGS-F	M	Col ½	*4.08	Bendix	Ross	S 56¾	Own	Bijur	*17x6 00
Austin	Gear	Aut-L	*Aut-L	Rock	WG	3	——	S	Sal ½	5.25	M	Say-B	Cant	Own	Al-Z	18x3.75
Buick 32-50	Tex	Del-R	Del-R	*Own	O	3	SM-Own-F	O	Own ½	4.60	Own	Sag	S 56	Own	Al-Z	18x5.50
Buick 32-60	Tex	Del-R	Del-R	*Own	O	3	SM-Own-F	O	Own ¾	4.54	Own	Sag	S 55¼	Own	Al-Z	18x6.00
Buick 32-80	Tex	Del-R	Del-R	*Own	O	3	SM-Own-F	O	Own ¾	4.27	Own	Sag	S 58⅞	Own	Al-Z	18x7.00
Buick 32-90	Tex	Del-R	Del-R	*Own	O	3	SM-Own-F	O	Own ¾	4.36	Own	Sag	S 58⅞	Own	Al-Z	18x7.00
Cadillac 355 B	Morse	Del-R	Del-R	*Own	O	3	SM	S	Own ¾	4.60	Own M	Sag	S 58	Own	Alem	17x7.00
Cadillac 370 B	Morse	Del-R	Del-R	*Own	O	3	SM	S	Own ¾	4.80	Own M	Sag	S 58	Own	Alem	17x7.50
Cadillac 452 B	Morse	Del-R	Del-R	*Own	O	3	SM	S	Own ¾	4.64	Own M	Sag	S 60	Own	Alem	18x7 50
Chevrolet	Gear	Del-R	*Del-R	Own	O	3	SM-F	—	Own ½	4.10	M	Own	S 54	Own	Alem	18x5.25
Chrysler 6	Chain	Del-R	Del-R	†—	O	3	O-F	—	Own ½	4.60	H	Own	S 53⅜	——	Alem	18x5 50
Chrysler 8	Chain	Del-R	Del-R	*—	O	4	O-F	—	Own ½	4.30	H	Gem	S 54⅝	——	Al-Z	17x6.50
Chrysler Imp. 8	Chain	Del-R	Del-R	*—	O	4	O-F	—	Own ½	4.10	H	Gem	S 57½	——	Al-Z	17x7.00
Chrysler Imp. 8 cus.	Chain	Del-R	Del-R	*—	O	4	O-F	—	Own ½	4.10	H	Gem	S 57½	——	Al-Z	17x7.50
Cord (Fr. Wh. Dr.)	Link	Del-R	*Del-R	Long	D	3	——	*	Col F	4.80	H	Gem	S 62	Own	Bijur	18x7.00
De Soto Six	Chain	Del-R	Del-R	†Own	O	3	O-F	—	Own ½	4.62	H	Own	S 53⅜	——	Alem	18x5.25
De Vaux 6-80	Morse	Aut-L	*Aut-L	Borg	W	3	W-F	S	†AD ½	4.40	M	†W	S 54¼	Tryon	Al-Z	19x5 25
Dodge Six D L	Chain	Del-R	—	†—	O	3	—— F	—	Own ½	4.60	H	Own	S 54¾	——	Al-Z	18x5.50
Dodge Eight D K	Chain	Del-R	Del-R	*—	O	3	—— F	—	Own ½	4.10	H	Gem	S 55	——	Al-Z	18x6.00
Essex Terraplane	Gear	Aut-L	*Aut-L	Own	O	3	SM —	S	Own ½	—	Bendix	Gem	S 48	Own	Alem	17x5.25
Essex-Gr. Su. 6	Morse	Aut-L	*Aut-L-S	*Own	O	3	SM-WG-F	S	Own ½	4.63	Bendix	Gem	S 54⅛	Own	Alem	18x5.25
Ford A	Var-G	Own	*Own	Own	O	3	SM	O	Own ¾	4.11	M	Gem	S-Tr 39	Own	Al-Z	18x5 25
Ford V8	Var-G	Own	*Own	Own	O	3	SM	O	Own ¾	4.11	M	Gem	S-Tr	Own	Al-Z	18x5.25
Franklin Olympic	Chain	Del-R	*Del-R-S	Long	WG	3	SM-F	S	Own ½	4.30	H	Ross	El 42	Tryon	Al-Z	17x6.00
Franklin Series 16	Chain	Del-R	*Del-R-S	Br-L	W	3	SM-BW-F	M	Own ½	4.73	H	Gem	El 42	——	Al-Z	19x6 50
Franklin V-12	Chain	Del-R	*Del-R-S	Long	W	3	SM-BW-F	M	Col ½	5.10	H	Ross	S 60	Faf	Al-Z	17x7.50
Graham 6 (1933)	Link	Del-R	Del-R	*Long	WG	3	SM	U	Sal ½	4.55	H	Ross	S 54	ERS	Al-Z	17x6.00
Graham 6	Link	Del-R	Del-R	Long	WG	3	WG-F	U	Sal ½	4.45	H	Ross	S 54	ERS	Al-Z	17x5.50
Graham 8	Link	Del-R	Del-R	Long	WG	3	SM-WG-F	S	Sal ½	4.30	H	Ross	S 54	ERS	Al-Z	17x6.00
Hudson Gr. 8	Morse	Aut-L	*Aut-L-S	*Own	O	3	SM-WG-F	S	Own ½	†4.63	Bendix	Gem	S 54⅛	Own	Alem	*17x6.00
Hupmobile 216	Chain	Aut-L	*A-L-S-§	Borg	WG	3	SM-WG-F	M	Spic ½	4.54	M	Ross	S 53	Tryon	Al-Z	18x5.50
Hupmobile 222	Morse	Aut-L	*A-L-S-§	Borg	WG	3	SM-WG-F	U	Own ½	4.36	M	Gem	S 57½	Rub-B	Al-Z	17x6.00
Hupmobile 226	Morse	Aut-L	*A-L-S-§	Long	D	3	SM-DG-F	U	Own ½	4.36	M	Gem	S 57½	Rub-B	Al-Z	17x6.50
La Salle 345 B	Morse	Del-R	Del-R	Own	O	3	SM	S	Own ¾	4.60	Own M	Sag	S 58	Own	Alem	17x7.00
Lincoln V-8	Chain	Aut-L	*Aut-L	Long	O	3	SM-F	S	Own F	4.58	*Bendix	Own	S 62	Own	Alem	18x7.00
Lincoln V-12	Chain	Aut-L	*Aut-L	Long	O	3	SM-F	S	Own F	4.58	*Bendix	Own	S 62	Own	Alem	18x7.50
Marmon 8	Diam	Del-R	*Del-R	*—	D	3	SM	S	Spic ½	4.08	Bendix	Ross	S 57	Tryon	Alem	18x6.00
Marmon 16	Diam	Del-R	Del-R	Rus	M	3	SM	S	Spic ½	3.78	Bendix	Ross	S 59½	**	Alem	18x7.00
Nash Lig Six	Chain	Aut-L	*A-L-S-§	Borg	O	3	SM-DG-F	O	Own ½	4.70	M	Ross	S 54	ERS	Alem	18x5.25
Nash Stand. Eight	Chain	Aut-L	*A-L-S-§	Borg	O	3	SM-DG-F	O	Own ½	4.44	M	Ross	S 54	ERS	Alem	18x5 50
Nash Spec. Eight	Chain	*Aut-L	*A-L-S-§	Borg	O	3	SM-DG-F	O	Own ½	4.43	Bendix	Gem	S 55¾	*	Bijur	17x6.50
Nash Adv. Eight	Chain	*Aut-L	*A-L-S-§	Borg	O	3	SM-DG-F	O	Own ½	4.50	Bendix	Gem	S 57⅛	*	Bijur	18x7.00
Nash Ambas. Eight	Chain	*Aut-L	*A-L-S-§	Borg	O	3	SM-DG-F	O	Own ½	4.50	Bendix	Gem	S 57⅛	*	Bijur	18x7.00
Oldsmobile F-32	Chain	Del-R	Del-R	Borg	M	3	SM-DG-F	S	Own ½	4.56	Bendix	Sag	S 54½	Tryon	Al-Z	17x6.00
Oldsmobile L-32	Chain	Del-R	Del-R	Borg	M	3	SM-DG-F	S	Own ½	4.77	Bendix	Sag	S 54½	Tryon	Al-Z	17x6.00
Packard Twin Six	Morse	Aut-L	*Dyn	*Long	O	3	SMF	M	Own ½	4.69	*M	Own	S 60½	Own	Bijur	18x7.50
Packard Stan. 8	Morse	NE	*Dyn	Long	O	3	SM	M	Own ½	4.66	M	Own	S 60½	Own	Bijur	19x6.50
Packard De L. 8	Morse	NE	*Dyn	Long	O	3	SM	M	Own ½	4.66	M	Own	S 60½	Own	Bijur	19x7.00
Packard Light 8	Morse	NE	*Dyn	*Long	O	3	SMF	S	Own ½	4.66	M	Own	S 56	Own	Alem	17x6.50
Pierce-Arrow 54	Chain	Del-R	*Del-R-S	Long	O	3	SM-WG-F	S	Own ½	4.42	Bendix	Ross	S 61	Faf	Myers	18x6.50
Pierce-Arrow 52	Chain	Del-R	*Del-R-S	Long	O	3	SM-WG-F	S	Own ½	4.42	Bendix	Ross	S 61	Faf	Myers	18x7.00
Pierce-Arrow 53	Chain	Del-R	*Del-R-S	Long	O	3	SM-WG-F	S	Own ½	4.58	Bendix	Ross	S 61	Faf	Myers	18x7.00
Plymouth	Var	Del-R	Del-R	†Own	O	3	O-F	O	Own ½	4.33	H	Own	S 53⅜	——	Al-Z	18x5.25
Pontiac 6	Chain	Del-R	Del-R	Own	M	3	SM-BW-F	M	Own ½	4.55	Bendix	Sag	S 54	Inlox	Al-Z	18x5.25
Pontiac V-8	Link	Del-R	Del-R	Own	M	3	SM-BW-F	M	Own ½	4.22	Bendix	Sag	S 54½	Inlox	Al-Z	17x6.00
Reo Fly. Cloud "S"	Chain	Del-R	*Del-R-S	Long	O	3	SM-F	S	Own ½	4.60	H	Ross	S 55	Tryon	Al-Z	17x5.50
Reo Royale Cust.	Morse	Del-R	Del-R-§	Long	O	3	SHG	U	Own ½	4.07	H	Ross	S 57½	Own	Far	18x6.50
Reo Royale	Morse	Del-R	Del-R-§	Long	O	3	SHG	U	Own ½	4.07	H	Ross	S 57½	Own	Al-Z	18x6.50
Reo 8-25	Link	Del-R	*Del-R	Long	O	3	SHG	U	Own ½	4.90	H	Ross	S 55¾	Own	Al-Z	17x6.50
Rockne 6-65	Morse	Aut-L	*Aut-L-S	Borg	WG	3	SM-BW-F	M	Spic ½	4.55	Bendix	Ross	S 54	Tryon	Al-Z	18x5.25
Rockne 6-75	Chain	Aut-L	*Aut-L-S	Long	WG	3	SM-BW-F	M	Own ½	4.73	Bendix	Ross	S 54	Tryon	Al-Z	18x5.50
Studebaker 6-55	Chain	Del-R	*Del-R-S	Long	O	3	SM-BW-F	S	Own ½	4.27	Bendix	Ross	S 54	Tryon	Alem	18x5.50
Studebaker Dict. 62	Cel	Del-R	*Del-R-S	Long	O	3	SM-BW-F	S	Own ½	4.73	Bendix	Ross	S 54	Tryon	Alem	18x5.50
Studebaker Com. 71	Cel	Del-R	*Del-R-S	Long	O	3	SM-BW-F	S	Own ½	4.73	Bendix	Ross	S 56	Faf	Alem	18x6.00
Studebaker Pres. 91	Var-G	Del-R	*Del-R-S	Borg	O	3	SM-BW-F	S	Own ½	4.31	Bendix	Ross	S 60	Faf	Alem	18x6.50
Stutz LAA	Link	Del-R	Del-R	Borg	D	4	——	U	Sal ½	5.10	H	Gem	S 60	Own	Bijur	19x6.50
Stutz SV-16	Link	Del-R	Del-R	Long	M	3	SM	M	Tim ½	4.75	H	Gem	S 62¾	Own	Bijur	*18x7.00
Stutz DV-32	Link	Del-R	Del-R	Long	M	3	SM	M	Tim ½	4.50	H	Gem	S 62¾	Own	Bijur	*18x7.00
Willys-Over. 6-90 A	Link	Aut-L	*Aut-L-S	Own	O	3	SM-F	S	Own ½	4.60	Bendix	Own	S 51	Tryon	Alem	18x5 25
Willys-Over. 8-88 A	Link	Aut-L	*Aut-L-S	Borg	O	3	SM-F	S	Own ½	4.40	Bendix	Ross	S 56	Tryon	Alem	18x5.50
Willys-Knight 66E	Link	Aut-L	*Aut-L-S	Rock	O	3	SM-F	S	Own ½	4.18	Bendix	Ross	S 56	Tryon	Alem	17x6.00

KEY TO ABBREVIATIONS

Weight — §Austin standard 2 passenger coupe. Stutz DV 145-inch wheel base weighs 5,352. †Tudor sedan.

Engine make—Con, Continental; Lyc, Lycoming. *Air-cooled with spot temperature control. †Thermo syphon water circulation. §Floating power.

Thermostat—Bish-Bab, Bishop & Babcock. Dole, Dole Valve Co., Chicago, Ill.; Ful, Fulton Co.; Har, Harrison; Pines, Pines Winterfront.

Valve arrangement—L, L head; H, horizontal; O, overhead; K, sleeve valve; HO, Horizontal Opposed.

Piston Material—*Alum, aluminum with invar struts. Alum, aluminum alloy Cl cast iron. Lo-Ex, Aluminum Corporation of America.

Oil Purifier—Han, Handy; AC, AC Spark Plug Company; Flo, Floato; Cuno, Cuno Engineering Corp.; Pur, Purolator. †Using AC with Floato attachment. **Using both AC and Purolator.

Fuel Cleaner—AC, AC Spark Plug Co.; Ste, Stewart-Warner; Til, Tillotson; V-S, an Bicklen.

Carburetor—Sch, Wheeler Schebler; Zen, Zenith; Mar, Marvel; Car, Carter; Str, Stromberg; DL, Detroit Lubricator; Til, Tillotson; B&B, Ball & Ball; *Designed by Chrysler, made by Carter Carburetor Company.

Air Cleaner—AC, AC Spark Plug Company; AM, Air Maze; Un, United; Til, Tillotson.

Front End Drive—Link, Link Belt; Tex, Texolite; Cel, Celeron; Diam, Diamond Chain; Morse, Morse Chain Company; Var, various makes of chains; Var-G, various makes of gears.

Ignition, Generator and Starter—Aut-L, Auto-Lite; A-L, Auto-Lite; Del-R, Delco-Remy; Dyn, Owen-Dyneto Corp.; N E, North East. *Nash.—Indicates twin ignition. *Bendix starter used. S—Startix equipped. §Startix optional equipment.

Clutch—Borg, Borg & Beck; Br-L, Brown-Lipe; Rock, Rockford Machine; Long, Long Clutch Company; Rus, Russell Mfg. Co. *Bendix Clutch Control. †Automatic clutch optional at additional cost.

Transmission Make—D, Detroit Gear; WG, Warner Gear Company; M, Muncie Gear Company; O, Own; W, Warner Corp.

Transmission Type—DG, Detroit Gear & Machine Co.; LGS, The LGS Corp.; F, Free Wheeling; SM, Synchro Mesh; BW Borg-Warner; WG, Warner Gear Co.; SHG, Synchronized Herringbone Gear; O, Own.

Universals—U, Detroit Universal Products; S, Spicer Mfg. Corp.; O, Own; M, Mechanics Universal Joint Company. *Cord using Detroit Universal Products and Mechanical Universal Joint Co.

Rear Axle—Col, Columbia; Sal, Salisbury; Spic, Spicer Mfg. Corp.; Tim, Timken; ½, Semi-flotation; ¾, ¾ floating; F, full floating. ‡Adams used on custom models.

Ratio—*Dual ratio optional; †Hudson 132-in. wheel base models have rear axle ratio of 5.10.

Brakes — H, hydraulic; M, mechanical; Bendix, Bendix Brake Corp. *Equipped with Vacuum Booster.

Steering Gear—Gem, Gemmer; Ross, Ross Gear and Tool Company; Sag, Saginaw; Say-B, Saylor-Beall Manufacturing Company; W, Warner Corp.; †Ross used on custom models.

Rear Springs — S, semi-elliptic; El, full elliptic; Cant, semi-cantilever; S-Tr, semi-transverse.

Spring Shackles — Tryon, Willys-Morrow Company; Rub B, Rubber Shock Insulator Company; Faf, Fafnir Bearings Company; ERS, Eaton Products, Inc.; Inlox, Inland Mfg. Co. *Own, front. ERS, rear. **Using both Rubber-B and Fafnir.

Chassis Lubricator—Alem, Alemite; Al-Z, Alemite Zerk; Bijur, Bijur Lubricating Corp.; Far, Farval. Myers - Chassis Lubricating Co.

Tires—Auburn 8 custom models equipped with 17x6.00. *Hudson 132-in. wheel base models equipped with tires 17x6.50. Stutz 145-inch wheelbase models have 20x7.00 tires.

Institutional Advertising Campaign of Louisville, Ky., Dealers Attracts Attention

(Continued from Page 4)

tight temporarily. In this same advertisement, warning was issued against letting the automobile graveyard supply parts for the car, or use of parts from junked and wrecked autos, which may prove very expensive as well as dangerous to life and limb of the owner.

Another discussed "Millions of Dollars Wasted" because of mechanical inefficiency, and comparing 100,000 miles secured by some owners from cars wherein the original dealer did all of the repair work on said car, as compared with other cases wherein a car at 30,000 miles was ready for the junk pile, due to use of defective parts, improper oils, greases, poor mechanics of the jack of all trades type.

Another was headed "It is true that grease is grease and oil is oil, but seven or more kinds of grease and oil are required to properly lubricate your automobile," and reasons for proper oiling and greasing were stated, with the statement that bargain oil and grease jobs may save the owner a little money at the time but the owner is taking the risk of later trouble costing far more than the temporary savings.

In one piece of copy a wise old owl was perched at the top, while the owner was told to "get wise to the possibilities for better automobile service," pointing out that the automobile investment, whether purchased new or used, represents a

(Continued on Page 12)

70

Manufacturers of Automotive Vehicles Equip with

ROSS

Roller Mounted CAM AND LEVER Steering

★

This is the most efficient steering gear ever developed and therefore is the *easiest steering, regardless of the type of tires used.*

★

See Fifth Column to Left

Please see the fifth column to the left, giving steering gear information. Notice the outstanding Ross predominance. This preference for Ross exists not only in the passenger car field, but in the truck and bus field and other divisions of the automotive industry as well. Passenger Car figures are:

ROSS 27

First Competitor 19

Second Competitor 12

Third Competitor 1

Build their own 12

206 Engineering Staffs Prefer Ross

WORCESTER A. S. S. T. HEARS R. C. JORDAN

Worcester, Mass., Oct. 21.—Robert C. Jordan, sales engineer in the New York office of the Wickwire Spencer Steel Company, read a paper on "The Design and Heat Treatment of Springs" at a meeting of the Worcester chapter of the American Society for Steel Treating at the Aurora Hotel. The meeting was preceded by a supper.

Mr. Jordan's talk covered the principal points of spring design and showed with the aid of lantern slides the effects of heat treatment on the design and use of springs. The speaker is a graduate of the Worcester Polytechnic Institute in the class of 1925. He has been an engineer in the spring mill of the Wickwire Company and later in charge of manufacture of special spring wires.

Mr. Jordan has been active in the affairs of the Worcester chapter of the society and for several years was a member of the executive committee. Recently he was secretary and vice-chairman of the local chapter.

VANCOUVER SECURES 31 NEW INDUSTRIES

Vancouver, B. C., Oct. 21.—Since the first of the year, thirty-one new plants have been established in the Greater Vancouver area.

ON THE OTHER HAND

SPINNING ACTIVITIES UP

Washington, Oct. 21.—The cotton spinning industry was reported today by the Census Bureau to have operated during September at 94.6 per cent. capacity on a single shift basis, compared with 72.4 per cent. in August this year and 88.1 per cent. in September last year.

Spinning spindles in place September 30 totaled 31,545,832, of which 23,883,948 were active at some time during the month, with the average on a single shift basis, being 29,856,205, compared with 31,643,898, 22,022,490 and 22,896,024 in August this year and 32,586,880, 25,236,916 and 28,722,089 in September last year.

Active spindle hours for September totaled 6,866,031,482, or an average of 218 hours per spindle in place, compared with 5,539,006,107 and 175 for August this year and 540,450,573 and 201 for September last year.

RAISES WAGES 5 PER CENT.

Cleveland, Oct. 21.—More than 300 employees of the Pocahontas Oil Corporation have received a 5 per cent. increase in salary.

The volume of business last week was the greatest in the eleven-year history of the company, Douglas S. Campbell, president, said.

If conditions warrant, another 5 per cent raise will be given in a month to balance the 10 per cent. reduction ordered in May, and other increases later, he said.

GETS 4,400-TON ORDER

Pittsburgh, Oct. 21.—Carnegie Steel Company has received an order from a large contractor involving 4,400 tons of steel, including reinforcing bars, to be used in a municipal project in Louisville, Ky.

Gastonia, N. C., Oct. 21.—The Clara plant of the Gastonia Thread Mills, Inc., owned and operated by the Goldberg group, is operating all of the machinery on a full-time day and night schedule. W. P. Wingate is superintendent.

Cumulative New Commercial Car Registration Statistics, September, 1932

Figures in this table are from R. L. Polk & Co. of Detroit, with the exception of Illinois, which are supplied by the Robinson Advertising Service, Springfield, Ill., and New Jersey, which are furnished by the New Jersey Motor List Co., New Car Division, Trenton, N. J. Metropolitan district figures compiled by Sherlock & Arnold are included in New York state total. Readers desiring county, city or town lists, or lists of owners in any given section, may obtain these by addressing any of these three companies. Some of this data has been published previously, but it is given here complete for the convenience of our subscribers. Commercial car figures do not include buses.

Returns for today: Nebraska, Pennsylvania

In this table, 33 states and the District of Columbia

States	Autocar	Brockway	Chevrolet	Diamond-T	Dodge	Federal	Ford	G. M. C.	Indiana	International	La France-Republic	Mack	Pierce-Arrow	Reo	Sterling	Stewart	Studebaker	White	Willys-Overland	Miscellaneous	Totals	States
Arkansas			52	1	2	1	33	1		11				1							102	Arkansas
California	1		215	1	36		390	34	15	38		3		22	3	1	23	6	2	18	808	California
Connecticut	1	2	80		16	5	95	10	2	23		1		10			3	1	1	1	251	Connecticut
Delaware			14				14	2		1				2			4			2	39	Delaware
Florida			69		6		88	2	1	7				5						11	189	Florida
Georgia			76		9	2	116	2	6	27				1			2	2		7	250	Georgia
Idaho			20		2	1	35	1		5				1			1				66	Idaho
Illinois	1		169	20	31	2	440	8	3	59	1	2		12	2		4	2	4	7	767	Illinois
Indiana	1		181	4	23	1	148	14	13	41	1	1		8		2	8	3	2	2	453	Indiana
Kansas			142	3	4	1	146	8	1	34		1	1	3			6		2	2	354	Kansas
Louisiana			85	2	6		78	1		17				5						4	198	Louisiana
Maryland	7	4	97	2	10	1	61	4	10	30		6		7		1	2			3	245	Maryland
Michigan			175	4	21	4	267	17	1	38	1			16			11	2	1	6	564	Michigan
Minnesota			134	11	15	1	118		1	33		2		4		1	6		1	2	329	Minnesota
Missouri			232	15	22	2	270	11	3	46		1		10			9	6		6	633	Missouri
Montana	2		43		4		29	1	1	24	1						5	1	1		112	Montana
Nebraska			35	2	2		59	3		27				1			1		1	1	132	Nebraska
New Hamp.	1	1	41	2	3		47	4		8	1	2		1			2		1	2	116	New Hamp.
N. Mexico			21				34		2	3											60	N. Mexico
North Car.			225	1	8		129	6	2	17				1						13	402	North Car.
North Dakota			30	1	1		34	3		21		2		1			1				94	North Dak.
Ohio,	5		234	10	44	1	318	18	9	70				26			6	6	6	15	768	Ohio
Oregon			40		3	1	31	1		5				2			1			1	85	Oregon
Pennsylvania	5	11	355	6	112	9	465	43	14	123	1	11		22		21	17	2	10	18	1245	Pennsylvania
Rhode Island	2		24		4	5	37	4		4				2							82	Rhode Isl.
S. Carolina			53		8		54	6		4	1									2	128	S. Carolina
S. Dakota			25		1		11	1		10		1		1							50	S. Dakota
Utah			63		5		36	1		7							2				114	Utah
Vermont			34		2		37	1	2	6									1		83	Vermont
Virginia	1		157		9	1	191	9	2	10		4						3	1	2	390	Virginia
Washington			49	2	6	2	83	8	3	18				3			6		2	3	185	Washington
W. Virginia	2		76		7		69	3	1	8		2		5			1		1		175	W. Virginia
Wisconsin			111	8	15	3	111	9	1	42			1	5	1		5		1	5	318	Wisconsin
Dist. of Col.			37		4	3	51	7		4							1			7	114	Dist. of Col.
Totals	29	18	3394	95	441	46	4125	243	93	821	7	39	2	177	6	26	127	34	38	140	9901	Totals
Arkansas, '31			67		2		56	1		17											143	Arkansas, '31
California '31	8		367	6	64	13	860	39		51	1	7		34	25	3	24	8	12	75	1597	Calif'rnia, '31
Conn'ticut '31	7	2	150	1	21	10	203	21		42	2	16	5	25	3	6	10	5	3	4	536	Con'ticut, '31
Delaware, '31			28		1		34	1		9				2						1	76	Delaware, '31
Florida, 1931			140		4	1	195	1		13				2				1	1		358	Florida, 31
Georgia, 1931		1	196		11	1	173	5		20		1		5			2	9		3	427	Georgia, '31
Idaho, 1931			69		6		76	6		17		1		3			1	1	4	3	187	Idaho, 1931
Illinois, 1931	2	2	355	40	53	5	426	55		84		6		14	2	1	12	4	12	47	1120	Illinois, 1931
Indiana, 1931		5	438	6	48		395	39		87				13		2	13		28	2	1076	Indiana, '31
Kansas, 1931		1	121	4	13		117			14				7			4		6	11	298	Kansas, 1931
Louisiana, '31			208	2	20	1	205	4		48		1		2			1	2	1	1	496	Louisiana, '31
Maryland, '31	1	3	144	4	5	1	132	11		33	3	1	1	16		1	3	8	2	9	378	Maryland, '31
Michigan, '31	1		340		25	6	503	28		56	3			47			11	3	7	11	1041	Michigan, '31
Minnesota, '31			170	13	14	2	190	7		58		1	1	10	1		4	1	8	6	486	Minn., '31
Missouri, 1931		4	305	14	23	3	334	12		65	1	3		14	1		6	2	7	11	805	Missouri, '31
Montana, '31			37		7		68			23				2			5			1	143	Montana, '31
Nebraska, 1931			119	2	8		119	1		33		1		1			6	1	3		294	Nebraska, '31
N. Hamp., '31		3	65	6	4		100	2		7		2		5		3	1		3		201	N. Hamp., 31
N. Mexico, '31			44	1	1		34			6				1							87	N. Mexico, '31
N. Car., '31	2		458	1	19		328	6		32		3		6				3	4	10	872	N. Car., 1931
North Dak, '31			43		5		45			31				1					1	3	129	Nor. Dak. '31
Ohio, 1931	3	3	323	3	43	4	447	36		82	3	3		43	3	7	29	34	15	38	1119	Ohio, '31
Oregon, '31			69		4	2	102	2		10		1		10	1		2	2		7	212	Oregon, 31
Penn., 1931	24	14	603	26	118	1	961	30		151	4	33	1	84	8	23	33	35	40	42	2231	Penn., 1931
Rhode Isl., '31	1	3	35	3	3		82	18		8	1	2		14					1	6	177	R. Isl., '31
S. Car., '31			122		8	1	104	3		2										3	243	S. Car., 1931
S. Dakota, '31			48	4	5	1	27	1		24							4		1	1	116	S. Dak., '31
Utah, 1931			57		5		86	4		10				13			1		1	2	179	Utah, 1931
Vermont, '31		1	40		4		41	3		12				4				1	5		111	Vermont, '31
Virginia, 1931	2		267		13	1	226	7		34	2	4		2				5	2	1	566	Virginia, '31
Wash'gton, '31			104	1	10		174	9		32		1		10			7	4	3	14	369	Wash., '31
W. Vir., '31		1	84	1	12	1	112	3		17	1			6			8	1	7	1	255	W. Vir., '31
Wisconsin, '31			224	15	22	1	219	11		37				12	3	1	6	3	10	13	577	Wis., 1931
D. of Col., '31	4		44	10	4	2	117	18		4							4			7	214	D. of C., '31
Totals, '31	55	43	5884	163	605	57	7291	384	*	1169	21	87	8	408	47	47	193	137	187	333	17119	Totals, '31

*Combined with Brockway.

PASSENGER CAR EQUIPMENT AND ACCESSORIES

MAKE AND MODEL	Speedometer	Clock	Fuel Gauge	Lock	Spark Plugs	Battery	Heat Indicator	Cig. Lighter	Non-Shatter Glass	Heater	Horns Make & No.	Adjustible Seats	FREE WHEELING Make	FREE WHEELING Clutch Control	FREE WHEELING Synchro Mesh	Trunk Rack	Trunk	Windshield Wings	Wired for Radio	Color Options	Wheels	Wire or Wood	Spring Covers	Shock Absorber
Auburn 8-100	—	—	—	—	Cha	USL	—	Cas	—	—	—	—	LGS	No	Yes	C	—	—	No	C	**	—	—	Del-RC
Auburn 12-160	—	—	—	—	Cha	USL	—	Cas	—	—	—	Yes	LGS	No	Yes	Yes	—	—	No	Yes	**	—	—	Hou-RC
Austin	NE	NO	K-S	B-S	Cha	USL	No	No	No	No	—	—	—	—	—	—	—	—	No	—	—	—	—	Own
Buick 32-50	AC	—	AC	Oak	AC	DR	AC	No	§LOF	—	DR-1	—	Own	Yes	Yes	No	—	—	No	Yes	K-H	Wo	—	Del-RC
Buick 32-60	AC	—	AC	Oak	AC	DR	AC	No	§LOF	No	DR-1	—	Own	Yes	Yes	No	—	—	No	Yes	K-H	Wo	—	Del-RC
Buick 32-80	AC	—	AC	Oak	AC	DR	AC	Cas	§LOF	—	DR-1	—	Own	Yes	Yes	No	—	—	No	Yes	K-H	Wo	—	Del-RC
Buick 32-90	AC	—	AC	Oak	AC	DR	AC	Cas	§LOF	—	DR-1	—	Own	Yes	Yes	No	—	—	No	Yes	K-H	Wo	And	Del-RC
Cadillac 355B	AC	Jag	AC	DR	AC	DR	AC	Cas	LOF	—	DR-2	Yes	No	Ben	Yes	No	TS	—	Yes	Yes	K-H	Wi	And	Del-RC
Cadillac 370B	AC	Jag	AC	DR	AC	DR	AC	Cas	LOF	—	DR-2	Yes	No	Ben	Yes	No	TS	—	Yes	Yes	K-H	Wi	And	Del-RC
Cadillac 452B	AC	Jag	AC	DR	AC	DR	AC	Cas	LOF	—	DR-2	Yes	No	Ben	Yes	No	TS	—	Yes	Yes	K-H	Wi	And	Del-RC
Chevrolet	AC	—	AC	DR	AC	***	AC	—	$	*	—	—	—	No	Yes	—	—	—	No	—	Own	Wi	—	Del
Chrysler 6 CI	AC	No	Yes	No	AC	Wil	Yes	$	$	$	DR	Yes	Own	$	No	$	$	$	Yes	Yes	MW	Wi	§	Del-RC
Chrysler 8 CP	AC	No	Yes	No	AC	Wil	Yes	$	$	$	DR	Yes	Own	Yes	No	$	$	$	Yes	Yes	MW	Wi	And	Del-RC
Chrysler Imp 8 CH	AC	Elgin	Yes	No	AC	Wil	Yes	Cas	$	$	DR	Yes	Own	Yes	No	$	$	$	Yes	Yes	MW	¶	And	Del-RC
Chrysler Cust 8 CL	AC	Elgin	Yes	No	AC	Wil	Yes	Cas	Dup	$	DR	Yes	Own	Yes	No	$	$	$	Yes	Yes	MW	¶	And	Hou-RC
Cord Front Drive	Ste	No	Mot-M	DR	Cha	USL	Ster	Cas	—	No	—	—	—	—	—	—	—	—	No	—	—	—	—	Hou
De Soto Six	NE	No	Mot-M	DR	AC	Wil	Yes	No	$	No	—	—	—	$	—	CCC	$	%	Yes	Yes	K-H	Wi	—	Del
De Vaux 6-80	Ste	No	Mot-M	Yale	AC	Nat	Mot-M	No	$	No	DR-1	Yes	WC	No	No	Yes	§	No	No	—	MW	¶	No	Hou
Dodge Six	—	$	AC	DR	AC	Wil	AC	$	$	$	— 1	—	—	$	—	—	—	—	Yes	—	—	Wi	§	RC
Dodge Eight	—	$	AC	DR	AC	Wil	AC	$	$	$	— 1	Yes	—	Yes	—	—	—	—	Yes	—	—	Wi	And	RC
Essex Gr. Su. 6	Ste	—	Mot-M	Ele	AC	Ex	K-S	—	Dup	—	EA-1	Yes	WG	Yes	Yes	$	$	—	No	Yes	MW	¶	—	Mon-RC
Ford 4	Own	No	Yes	Hurd	Cha	Own	No	—	Yes	—	—	Yes	No	No	Yes	—	—	—	Yes	—	Own	Wi	No	Hou-RC
Ford V-8	Own	No	Yes	Hurd	Cha	Own	No	—	Yes	—	—	Yes	No	No	Yes	—	—	—	Yes	—	Own	Wi	No	Hou-RC
Franklin Olympic	Ste	No	K-S	Yale	Cha	Wil	No	Yes	—	No	Kla	Yes	WG	No	Yes	$	$	No	No	—	—	Wi	No	Del
Franklin V-12	NE	Borg	Yes	Yale	Cha	Wil	No	Cas	LOF	No	—	—	BW	No	Yes	‖	‖	—	Yes	—	—	Wo	—	RC
Franklin Series 16	NE	Borg	Yes	Yale	Cha	Wil	No	Cas	Yes	No	—	—	BW	No	Yes	‖	‖	—	Yes	—	—	Wo	And	RC
Graham 6	NE	—	K-S	Her	Cha	Wil	K-S	No	§LOF	No	DR-1	Yes	WG	No	No	No	No	—	No	Yes	MW	¶	No	Del
Graham 6 (1933)	Ste	—	K-S	Her	Cha	Wil	K-S	No	§LOF	No	DR-2	Yes	—	Yes	Yes	No	No	—	No	Yes	MW	¶	No	Del
Graham 8	Ste	—	K-S	Her	Cha	Wil	K-S	No	§LOF	No	DR-2	Yes	WG	No	Yes	No	No	—	No	Yes	MW	¶	No	Del-RC
Hudson Great 8	Ste	—	Mot-M	Ele	AC	Ex	K-S	—	Dup	—	EA-1	—	WG	Yes	Yes	Su	Su	—	No	Yes	—	Wi	—	Gab-RC
Hupmobile 216	Ste	No	Mot-M	Ele	Cha	Wil	Mot-M	No	§Dup	No	—	Yes	WG	No	Yes	S	—	—	Yes	Yes	MW	¶	—	Gab-RC
Hupmobile 222	Ste	No	Ste	Ele	Cha	Wil	Ste	No	§Dup	No	—	Yes	WG	No	Yes	S	—	—	Yes	Yes	MW	¶	—	Gab-RC
Hupmobile 226	Ste	No	Ste	Ele	Cha	Wil	Ste	Cas	§Dup	No	SW	Yes	DG	No	Yes	S	—	—	Yes	Yes	MW	¶	Yes	Gab-RC
La Salle 345B	AC	Jag	AC	DR	AC	DR	AC	Cas	LOF	—	DR-2	Yes	No	Ben	Yes	No	TS	—	Yes	No	K-H	Wi	And	Del-RC
Lincoln V-8	NE	Wal	K-S	Oak	Cha	Ex	Mot-M	Cas	†	No	SW	Yes	Yes	No	Yes	Yes	—	—	Yes	—	K-H	Wi	And	Hou-RC
Lincoln 12	NE	Wal	K-S	Oak	Cha	Ex	Mot-M	Cas	†	No	SW-K	Yes	Yes	No	Yes	Yes	—	—	Yes	—	K-H	Wi	And	Hou-RC
Marmon 8-125	AC	$	AC	DR	Cha	Nat	AC	Cas	—	—	DR-2	Yes	Yes	No	Yes	—	—	—	No	Yes	Day	Wi	—	Gab-RC
Marmon 16	AC	Jag	AC	DR	Cha	Ex	AC	Cas	Yes	—	SW-2	Yes	No	No	Yes	Yes	—	—	No	Yes	MW	Wi	And	Hou
Nash Big 6	Ste	No	K-S	Her	AC	USL	K-S	No	§Dup	No	SW-1	Yes	DG	No	Yes	CS	CS	—	Yes	Yes	MW	¶	—	Del-RC
Nash Standard 8	Ste	No	K-S	Her	AC	USL	K-S	No	§Dup	No	SW-1	Yes	DG	No	Yes	CS	CS	—	Yes	Yes	MW	¶	—	Del-RC
Nash Special 8	Ste	No	K-S	Her	AC	USL	K-S	No	§LOF	No	SW-1	Yes	DG	No	Yes	CS	CS	—	Yes	Yes	MW	¶	Yes	Del-RC
Nash Advanced 8	Ste	Borg	K-S	DR	AC	Ex	K-S	Cas	§LOF	No	SW-2	Yes	DG	No	Yes	CS	CS	—	Yes	Yes	MW	¶	Yes	Del-RC
Nash Ambas. 8	Ste	Borg	K-S	DR	AC	Ex	K-S	Cas	§LOF	No	SW-2	Yes	DG	No	Yes	B	B	—	Yes	Yes	MW	¶	Yes	Del-RC
Oldsmobile F-32	AC	No	AC	BS	AC	DR	AC	Yes	§LOF	—	DR-2	Yes	DG	No	Yes	$	$	$	No	Yes	K-H	¶	$	Lov-RC
Oldsmobile L-32	AC	No	AC	BS	AC	DR	AC	Yes	§LOF	—	DR-2	Yes	DG	No	Yes	$	$	$	No	Yes	K-H	¶	$	Lov-RC
Packard Stand. 8	NE	Jag	K-S	Yes	AC	Pre	Mot-M	Cas	LOF	No	SW	Yes	—	Ben	Yes	CV	CV	No	No	Yes	MW	‡	Yes	Del-RC
Packard De Luke 8	NE	Jag	K-S	Yes	AC	Pre	Mot-M	Cas	LOF	No	SW	Yes	—	Ben	Yes	CV	CV	No	No	Yes	MW	‡	Yes	Del-RC
Packard Light 8	NE	No	Ele	Yes	AC	Pre	Mot-M	Cas	LOF	No	SW	Yes	—	Ben	Yes	—	—	No	No	Yes	MW	‡	Yes	Del-RC
Packard Twin Six	Wal	Wal	Ele	Yes	AC	Pre	Mot-M	Cas	LOF	No	SW-2	Yes	—	Ben	Yes	CSV	CSV	No	No	Yes	MW	¶	Yes	Del-RC
Pierce-Arrow 54	NE	Borg	K-S	Her	Cha	Wil	K-S	Cas	Dup	No	DR-1	Yes	WG	No	Yes	††	††	No	Yes	Yes	K-H	Wo	And	Del-RC
Pierce-Arrow 52	NE	Borg	K-S	Her	AC	Wil	K-S	Cas	Dup	No	DR-1	Yes	WG	No	Yes	††	††	No	Yes	Yes	K-H	Wo	And	Del-RC
Pierce-Arrow 53	NE	Borg	K-S	Her	AC	Wil	K-S	Cas	Dup	No	DR-1	Yes	WG	No	Yes	††	††	No	Yes	Yes	K-H	Wo	And	Del-RC
Plymouth	NE	$	Yes	Sha	AC	Wil	Yes	$	§Dup	—	— 1	Yes	Own	$	No	—	—	—	Yes	—	K-H	¶	—	Del-RC
Pontiac 6	AC	No	AC	DR	AC	DR	AC	No	§LOF	—	— 1	Yes	BW	No	Yes	—	—	—	No	—	K-H	Wi	Yes	Lov-RC
Pontiac V-8	AC	No	AC	DR	AC	DR	AC	No	§LOF	—	— 2	Yes	BW	No	Yes	—	—	—	No	—	K-H	Wi	Yes	Lov-RC
Reo "S"	Ste	No	K-S	DR	Cha	Wil	AC	No	$	No	— 1	Yes	$-WG	Yes	Yes	§§	$	No	No	Yes	M-W	Wi	$	Del
Reo Royale Cust.	Ste	Elgin	K-S	DR	Cha	Wil	AC	Cas	Yes	No	—	Yes	No	Yes	SHG	§§	$	No	Yes	Yes	M-W	Wi	And	Del
Reo Royale	Ste	No	K-S	DR	Cha	Wil	AC	Yes	$	No	—	Yes	No	Yes	SHG	§§	$	No	Yes	Yes	M-W	Wo	And	Del
Reo 825	Ste	No	K-S	DR	Cha	Wil	AC	Yes	$	No	— 1	Yes	No	Yes	SHG	§§	$	No	Yes	Yes	M-W	Wo	And	Del
Rockne 6-65	Ste	No	K-S	Aut	Cha	Wil	K-S	—	§Lof	No	SW-1	Yes	BW	No	Yes	D	No	No	Yes	Yes	K-H	Wi	And	Del
Rockne 6-75	AC	No	K-S	Aut	Cha	Wil	K-S	—	§Lof	No	SW-1	Yes	BW	No	Yes	D	No	No	Yes	Yes	K-H	Wi	And	Hou
Studebaker 6-55	Ste	No	AC	DR	Cha	Wil	Ste	No	†	No	SW-1	Yes	BW	No	Yes	Yes	Yes	—	Yes	Yes	K-H	Wi	And	Hou
Studebaker Dic. 62	Ste	No	AC	DR	Cha	Wil	Ste	No	†	No	SW-1	Yes	BW	No	Yes	Yes	B	—	Yes	Yes	K-H	Wi	And	Hou
Studebak'r Com.71	Ste	No	AC	DR	Cha	Wil	Ste	No	†	No	SW-1	Yes	BW	No	Yes	B	B	—	Yes	Yes	K-H	Wi	And	Hou-RC
Studebak'r Pres.91	Ste	Borg	AC	DR	Cha	Wil	Ste	Cas	†	No	SW-1	Yes	BW	No	Yes	B	B	—	Yes	Yes	K-H	Wi	And	Hou-RC
Stutz L AA	Ste	Wal	Mot-M	DR	Cha	Pre	Mot-M	Cas	Dup	—	DR-1	Yes	—	No	Yes	—	—	—	No	Yes	M-W	Wi	—	Gab
Stutz SV	Ste	Wal	Mot-M	Her	Cha	Pre	Mot-M	Cas	Dup	—	DR-1	Yes	—	No	Yes	Co	—	Sp	No	Yes	K-H	Wi	—	Gab
Stutz S V	Ste	Wal	Mot-M	Her	Cha	Pre	Mot-M	Cas	Dup	—	DR-1	Yes	—	No	Yes	Co	—	—	No	Yes	K-H	Wi	—	Gab
Stutz DV 32	Ste	Wal	Mot-M	Her	Cha	Pre	Mot-M	Cas	Dup	—	DR-1	Yes	—	No	Yes	Co	—	—	No	Yes	K-H	Wi	—	Gab
Willys-Ov. 6-90 A	NE	No	Yes	Aut	Cha	USL	Yes	S-R	§LOF	No	—	Yes	Own	No	Yes	—	—	S-R	No	—	K-H	Wi	—	Mon-R-C-C
Willys-Ov. 8-88 A	NE	No	Yes	Aut	Cha	USL	Yes	C	§LOF	No	— 2	Yes	Own	No	Yes	—	—	S-R	No	—	K-H	Wi	—	Mon-R-C-C
Willys-Knig't 66 E	NE	Wal	Yes	Aut	Cha	USL	Yes	Yes	LOF	No	— 2	Yes	Own	No	Yes	Sp	—	—	No	—	K-H	Wi	—	Mon-R-C-C

KEY TO ABBREVIATIONS

AC—A C. Spark Plug Company, Flint, Mich.
And—Anderson Mfg. Company, Cambridge, Mass.
Aut—Electric Auto-Lite Co., Toledo, O.
B—Brougham.
BS—Briggs-Stratton Co., Milwaukee, Wis.
BW—Borg Warner Corp.
Ben—Bendix Corp.
Borg—Geo. W. Borg Corp.
C—Custom Models.
CCC—Convertible Custom Coupe.
Co—Coupe.
CS—Convertible Sedan.
CSV—Convertible Sedan and Victoria.
CV—Convertible Victoria.
Cas—Casco Prodcuts Corp., Bridgeport, Conn.
Cha—Champion Spark Plug Co., Toledo, O.
D—De Luxe Models.
DG—Detroit Gear and Machine Co., Detroit, Mich.
DR—Delco Remy Corp, Anderson, Ind.
Day—Dayton Wire Wheel Corp.
Del—Delco Products Corp., Dayton, Ohio.
Dup—Duplate Corp., Pittsburg, Pa.
EA—E. A. Laboratories, Brooklyn, N. Y.
Ele—Mitchell Specialty Co., Holmesburg, Pa.
Elgin—Elgin Watch Co., Elgin, Ill.
Ex—Electric Storage Battery Co., Philadelphia, Pa.
Gab—Gabriel Company, Cleveland, O.
Her—Hershey Mfg. Co., Chicago, Ill.
Hou—Houde Engineering Corp., Buffalo, N. Y.
Hurd—Hurd Lock Co., Almont, Mich.
Jag—Jaeger Watch Company, N. Y. City.
K—Kellog.
KH—Kelsey Hayes Wheel Corp.
Kla—Klaxon Company, Anderson, Ind.
KS—King Seeley Corp., Ann Arbor, Mich.
LGS—LGS Corp.
LOF—Libbey-Owens-Ford Glass Company, Toledo, O.
Mon—Monroe Auto Equipment Mfg. Co., Monroe, Mich.
Mot M—Moto Meter Gauge and Equipment Corp., L. I. City, N. Y.
MW—Motor Wheel Corp., Lansing, Mich.
NE—North East Appliance Corp., Rochester, N. Y.
Nat—National Lead Battery Co., St. Paul, Minn.
Oak—Oakes Products Corp., Chicago, Ill.
P—Phaeton.
Pre—Prest-O-Lite Company, Indianapolis, Ind.
RC—Ride Control.
S—Sedan.
Sch—Schwarze Electric Co., Adrian, Mich.
SHG—Synchronized Herringbone Gear.
Sp—Speedsters.
SR—Sport Roadster.
SU—Suburban.
SW—Sparks Withington Co., Jackson, Mich.
Sha—Shaler Lock Co., Milwaukee, Wis.
Ste—Stewart Warner Speedometer Corp., Chicago, Ill.
Ster—Sterling Clock Co., La Salle, Ill.
TS—Town Sedan.
Thom—Seth Thomas Clock Co., N. Y. City.
USL—USL Battery Corp., Niagara Falls, N. Y.
WC—Warner Corp.
WG—Warner Gear Co., Muncie, Ind.
Wal—Waltham Watch Co., Waltham, Mass.
Wi—Wire.
Wil—Willard Storage Battery Co., Cleveland, O.
Wo—Wood.
Yale—Yale and Towne Mfg Co., Stamford, Conn.
*Various makes.
**Motor Wheel Corp., wood wheels: Dayton Wire wheels optional.
***Using USL and DR batteries.
†Using LOF and Duplate Safety Glass.
††Club Brougham, Club Sedan, Club Berline and Connvertible Sedans.
§Optional.
§§Sport Sedan, Sport Coupe and Sport Convertible Coupe.
$Extra equipment at additional cost.
¶Wood or wire wheels optional.
‡Disk, Wire or Wood optional.
%Phaeton, Roadster and Business Roadster
‖Seven Sedan, Limousine, Pirate Touring and Pirate Phaeton.

Output Lags Behind Retail Sales Volume

(Continued from Page 1)

Harry Moock had booked orders for 10,732 units.

Hudson-Essex contributes to the news of the week a report on export shipments for the first nine months of the year. Chester Abbott, general manager, announces that export shipments for this period show an increase of 36 per cent. over the corresponding period of last year—2,121 units, as compared with 1,560. It looks as if the final quarter will show a gain considerably higher. Orders on hand right now for more than 500 cars for October shipment represent a material gain over last October.

It looks like a total of 2,741 cars for export for the first ten months of the year as compared with 1,632 for the same period in 1931. Few shipments are going to the Latin-American countries, Europe being the big customer.

The sales managers' committee of the National Automobile Chamber of Commerce held its monthly session Thursday and discussed show outlook and plans and debated on the proposition to decrease the number of models and options. However, no statement as to what was accomplished was given out.

Present at the meeting, presided over by Richard H. Grant of General Motors, were: Paul G. Hoffmann, Studebaker; Joseph E. Fields, Chrysler; Harry Harper, Willys-Overland; Chester Abbott, Hudson; C. H. Bliss, Nash; M. M. Gilman, Packard, and Alfred Reeves, vice-president of the N. A. C. C.

Steel men here are beginning to perk up a little. After a long drought they are beginning to get some automotive releases. One executive told a representative of Automotive Daily News that Plymouth, Chevrolet, Pontiac and Willys-Overland have recently come into the market with releases. He also said that Buick, Oldsmobile and several other companies were getting ready for releases within a short time. Ford is buying very little steel at the present moment, the supply on hand taking care of the immediate future. This steel executive remarked that while orders from the automotive industry were not as heavy as in some past years, they were extremely welcome to his industry at the present time.

PHARIS SALES UP 27%

Toledo, O., Oct. 21.—Continuing its policies of twenty years in keeping overhead low and selling quality tires at exceptionally low prices, the Pharis Tire and Rubber Company has consistently maintained a production schedule which has scarcely reflected the existence of a depression. Pharis sales for September are reported as 27 per cent. better than September of last year.

OPENS SPRING FACTORY

Nashville, Tenn., Oct. 21.—A complete automobile spring factory, the first of its type in Nashville, has been opened by the Auto Bearings & Parts Company, Inc., it was announced here today. L. J. Fuller is in charge of the factory.

CONTINENTAL MOTORS SEEKS STOCKHOLDERS VIEWS ON POWER, ETC.

(Continued from Page 1)

dreds of devices have been scrutinized by the company's engineers.

"It has been determined that the small passenger car comes nearer than anything else to filling the requirements of the situation."

N. Y. WILLYS SALES EXCEED SEPTEMBER

(Continued from Page 1)

reports today. Willys-Overland sales increased 15 per cent. over August levels and those of the Willys-Knight lines moved up 14 per cent., Mr. Pickett announces.

The Willys organization is enjoying a fall business better, on a comparative basis, than in many years. Sales continue in better than normal seasonal volume in comparison with those of preceding months. The branch looks for brisk sales through October, the weather so far having contributed to maintaining buying interest.

RAILWAY EXPRESS PLAN HEARING SLATED NOV. 10

Chicago, Oct. 21.—Hearings on the application of the Railway Express Agency for a certificate of convenience and necessity to engage in a broadened scope of delivery and hauling service have been postponed until November 10 by the Illinois Commerce Commission, it was announced today. The hearings have been going on intermittently since last May. Trucking contractors here are opposing the express agency's petition on the grounds that they cover the field adequately.

CLASSIFIED ADVERTISEMENTS IN THE AUTOMOTIVE DAILY NEWS BRING RESULTS

CUMULATIVE NEW PASSENGER CAR

Figures in this table are from R. L. Polk & Co. of Detroit, with the exception of Illinois, which are supplied by the Robinson Advertising Service, Springfield, Ill., and New York city, are included in the New York state total. Some of this data has been published previously, but it is given here complete for the convenience of

In this table, 35 states and the District of Columbia **Returns for today: Iowa, Nebraska,**

States	AUBURN GROUP			CHRYSLER GROUP					FORD GROUP			GENERAL MOTORS GROUP						
	Auburn	Cord	Totals	Chrysler	De Soto	Dodge	Plymouth	Totals	Ford	Lincoln	Totals	Buick	Cadillac	Chevrolet	La Salle	Oldsmobile	Pontiac	Totals
Arkansas	1		1	2	4	4	22	32	158		158	5	1	149		2	4	161
California	95	1	96	137	163	120	455	875	2426	30	2456	189	39	993	22	94	160	1497
Connecticut	14		14	36	34	20	168	258	302	3	305	53	11	280	8	24	71	447
Delaware				5	2	2	21	30	73		73	10	1	60	1	6	10	88
Florida	9		9	25	8	9	80	122	410	1	411	17	4	303	2	13	33	372
Georgia	1		1	14	7	19	53	93	468	1	469	36	2	378		14	36	466
Idaho	1		1	2	2	2	6	12	39		39	2	1	44		4	2	53
Illinois	61	1	62	82	115	84	595	876	1291	25	1316	99	25	967	34	103	165	1393
Indiana	29		29	37	74	38	238	387	725	4	729	49	3	554		48	70	724
Iowa	6	1	7	23	12	22	106	163	488	2	490	24	2	470	1	33	53	583
Kansas	13		13	16	16	24	144	200	652	4	656	28	2	550	5	27	66	678
Louisiana	8		8	1	10	25	39	75	423	1	424	17	2	404	3	15	22	463
Maryland	15	1	16	19	24	13	93	149	423		423	33	3	505	1	23	48	613
Michigan	16		16	47	65	43	285	440	1310	11	1321	67	34	775	16	104	140	1136
Minnesota	7		7	22	21	18	148	209	434	3	437	35	3	483	3	36	43	603
Missouri	11	1	12	27	62	39	287	415	899	8	907	78	6	755	5	67	74	985
Montana				1	1	1	27	30	80		80	8	1	69		5	10	93
Nebraska	4		4	11	3	7	40	61	308	1	309	16	5	235	4	20	41	321
New Hampshire	2		2	11	7	3	48	69	129	1	130	17		124	2	5	19	167
New Mexico				2	1	2	5	10	57		57	4		53			4	61
New York	126	1	127	268	259	200	1158	1885	2534	57	2591	526	80	2224	53	279	360	3522
North Carolina	6		6	26	9	11	66	112	497	2	499	14	2	416	3	14	18	467
N. Dakota				1	4	3	24	32	114		114	6		99		6	1	112
Ohio	55		55	84	126	81	519	810	1314	6	1320	81	22	956	15	99	145	1318
Oregon	2		2	7	8	8	25	48	152	4	156	14		92		12	10	128
Pennsylvania	71		71	211	182	137	881	1411	1798	17	1815	242	28	1484	32	189	290	2265
Rhode Island	6		6	11	21	11	64	107	134		134	30	3	90	3	4	48	178
South Carolina	3		3	10	5	6	31	52	314	1	315	5		219	1	3	17	245
South Dakota				7	1	7	25	40	101		101	4		104	2	12	6	128
Utah	1		1		8	5	18	31	72		72	5	1	66		5	11	88
Vermont	3		3	4	5	4	31	44	77	1	78	11	2	67		11	14	105
Virginia	4		4	14	35	31	88	168	744	2	746	30	3	508	3	21	64	629
Washington	5		5	16	15	11	66	108	248	1	249	29	1	152		16	30	228
West Virginia	4		4	16	7	29	83	135	271	1	272	10	2	209		9	21	251
Wisconsin	14		14	21	33	30	185	269	432	1	433	41	6	413	8	49	61	578
Dist. of Columbia	13		13	15	12	15	27	69	329	3	332	25	2	239	2	17	60	345
Line Total	606	6		1231	1361	1084	6151		20226	191		1860	297	15489	229	1389	2227	
Group Total			612					9827			20417							21491
Arkansas, 1931				8	1	22	56	87	185		185	7	3	169		5	7	191
California, 1931	200	1	201	285	227	241	1322	2075	3164	29	3193	464	80	2080	37	130	245	3036
Connecticut, 1931	39	2	41	71	57	53	275	456	447	3	450	134	16	549	11	52	144	906
Delaware, '31	2		2	15	4	3	28	50	119		119	21	1	74	4	9	18	127
Florida, 1931	22	1	23	30	7	19	202	258	392	3	395	41	3	502	2	15	62	625
Georgia, 1931	16	1	17	21	13	40	132	206	602	3	605	55	4	577	4	18	42	700
Idaho, 1931	4	1	5	4	5	11	44	64	108		108	12		100		2	5	119
Illinois, 1931	120	13	133	247	165	209	1138	1759	1893	13	1906	269	39	1741	29	207	324	2609
Indiana, 1931	68	6	74	117	134	125	650	1026	873	7	880	146	16	1061	6	106	197	1532
Iowa, 1931	20	1	21	63	22	85	264	434	708	2	710	56	2	842		47	126	1073
Kansas, 1931	12	3	15	16	15	34	130	195	364		364	38	2	520	2	25	74	661
Louisiana, 1931	8		8	27	20	26	106	179	365	1	366	18	3	479	1	13	42	556
Maryland, 1931	14		14	46	20	23	232	321	470	1	471	85	3	735	1	28	110	962
Michigan, '31	42	5	47	161	99	228	1175	1663	1679	11	1690	234	45	1409	28	182	244	2142
Minnesota, 1931	20	1	21	62	22	34	391	509	430		430	80	7	678	4	45	81	895
Missouri, 1931	47	4	51	86	60	92	474	712	1031	9	1040	104	11	1218	9	54	142	1538
Montana, 1931	2		2	14	5	5	43	67	82		82	9		80	1	4	29	123
Nebraska, 1931	10		10	19	11	28	156	214	362		362	40		474	1	18	54	587
N. Hampshire, '31	9		9	17	7	13	116	153	184	1	185	34	3	207	2	31	41	318
New Mexico, 1931				3	2	4	28	37	60		60	5	2	73			8	88
New York, 1931	290	10	300	591	234	353	2054	3232	2705	51	2756	933	156	3436	81	442	608	5656
N. Carolina, 1931	14		14	59	21	57	253	390	703	4	707	47	4	696	6	23	74	850
N. Dakota, '31	1		1	10	3	6	53	72	160	1	161	18		122		8	13	161
Ohio, 1931	112	6	118	222	141	143	1343	1849	1472	8	1480	195	38	1623	26	132	292	2306
Oregon, 1931	7		7	29	24	14	81	148	247	1	248	33	1	222	2	18	30	306
Pennsylvania, '31	157	2	159	442	200	324	1787	2753	2074	21	2095	490	62	2487	53	228	490	3810
Rhode Island, '31	16		16	48	45	25	131	249	208	2	210	49	9	225	3	14	64	364
So. Carolina, 1931	5		5	15	10	12	71	108	358		358	14		341		7	22	384
So. Dakokta, 1931				17	17	25	62	121	140		140	17		159	1	23	19	219
Utah, 1931	6		6	8	6	10	22	46	141		141	25	1	148	1	7	15	197
Vermont, 1931	7		7	10	5	10	52	77	107		107	24	1	95	4	7	27	158
Virginia, 1931	38		38	64	68	46	273	451	814	1	815	59	6	865	3	24	126	1083
Washington, 1931	15		15	37	50	30	210	327	332	2	334	70	8	281	3	38	62	462
W. Virginia, 1931	15	1	16	55	18	33	177	283	284	2	286	35		317	3	19	67	441
Wisconsin, '31	30	1	31	82	51	78	433	644	656	5	661	124	5	890	4	73	173	1269
Dist. of Col., 1931	20		20	25	27	48	189	289	617	4	621	62	7	442	3	33	96	643
Line Tot'l, '31	1388	59		3026	1816	2509	14153		24536	185		4047	538	25917	335	2087	4173	
Group Tot'l, '31			1447					21504			24721							37097

*Not in production.

T. D. PRATT OF M.T.A. SAYS TRUCKS SHARE TOTAL TAX BURDEN

(Continued from Page 1)

trucks are not paying their share of highway expenses.

"Taxes paid by motor vehicles per ton of freight carried in 1930 amounted to 17.3 cents per ton, exclusive of all corporate, profit, realty and other taxes paid by individuals or corporations operating these trucks; whereas, railroads, during the same period, paid 16.8 cents per ton carried, including every form of taxation"

Mr. Pratt then presented Interstate Commerce Commission figures indicating that steam railroads still carry about 73 per cent. of the total freight, while intercity trucks had only 4.2 per cent. of the total. "This," he stated, "would certainly indicate to anyone that no object is gained by Federal regulation of motor transportation, unless it is the intent to bid up and restrict all the private movements of goods and merchandise."

AUTOCAR REPORTS RECORD ORDERS FOR THIS YEAR

Philadelphia, Oct. 21.—Indications that business is on the mend are seen by Robert F. Wood, general sales manager of the Autocar Company of Lancaster Pike, Ardmore, Pa., in that last Monday showed the greater volume of sales for any day of the present year.

On Monday the volume of orders was the best for any single day this year, and also was greater than for any one day in October of 1931. Mr. Wood said he considered this a good sign of business betterment, as all the orders were small ones.

CLASSIFIED ADVERTISEMENTS IN THE AUTOMOTIVE DAILY NEWS BRING RESULTS

REGISTRATION STATISTICS, SEPTEMBER, 1932

New Jersey, which are furnished by the New Jersey Motor List Co., New Car Division, Trenton, N. J. Metropolitan district figures, compiled by Sherlock & Arnold, our subscribers. Readers desiring county, city, or town lists, or lists of owners in any given section may obtain these by addressing any of these three companies

New York and Washington

States	HUDSON GROUP			STUDEBAKER GROUP				WILLYS-OV'D GROUP			NON-AFFILIATED MANUFACTURERS									State Total
	Essex	Hudson	Totals	Pierce-Arrow	Rockne	Studebaker	Totals	Willys-Overland	Willys-Knight	Totals	De Vaux	Franklin	Graham	Hupmobile	Marmon	Nash	Packard	Reo	Miscellaneous	
Arkansas	1		1		5	2	7	4		4			1			4	1		1	371
California	224	37	261	28	257	148	433	45	24	69	5	1	138	45	1	69	51	18	6	6,021
Connecticut	70	5	75	4	36	23	63	12	1	13		2	21	9	3	21	22	17	1	1,271
Delaware	5		5		4	4	8	2		2						3	3		1	212
Florida	39	6	45		5	2	7	7	1	8	1	1	13	3	2	7	4	2	128	1,135
Georgia	28		28	2	19	16	37	15		15		2	10	5		3	4	2	48	1,183
Idaho	3		3		1		1						2			3			1	115
Illinois	142	15	157	14	56	91	161	93	11	104	2	11	54	18	2	67	75	18	9	4,325
Indiana	113	13	126	1	62	36	99	65		65		3	37	7	3	7	8	6	1	2,231
Iowa	67	8	75		23	9	32	44	1	45	2		9	1		13	10	3	5	1,438
Kansas	95	17	112	1	33	14	48	39	1	40	2	2	7	6		12	4	1	5	1,786
Louisiana	12	1	13		30	6	36	11	1	12	1		3	4	1	22	4		33	1,099
Maryland	39	1	40	5	39	21	65	20	2	22		1	22	5		7	12	3	3	1,381
Michigan	211	14	225	10	69	35	114	50	5	55	8	1	58	22	3	18	44	14	3	3,478
Minnesota	34	7	41		39	26	65	33	3	36		1	18	6		10	19	4	1	1,457
Missouri	69	8	77	9	33	40	82	44	2	46	2		50	13		23	11	15	4	2,642
Montana	6	1	7	1	5	2	8	6		6		3	2	1		6				236
Nebraska	16		16		23	11	34	16	1	17	1		5	1		6		2		777
New Hampshire	27	1	28		17	4	21	8	1	9		1	9	1		9	3	4		453
New Mexico					1		1		1	1			2							132
New York	361	59	420	52	170	381	603	248	42	290	5	43	154	106	26	168	200	70	20	10,230
North Carolina	52	4	56		6	10	16	8		8	1	1	6			3	4		21	1,200
N. Dakota	3		3		11	6	17	4		4	1		1				1			285
Ohio	220	14	234	7	88	64	159	241	12	253	3	7	95	20	1	41	36	21	2	4,375
Oregon	10	1	11		4	4	8	2		2		1	4	1		6	2			369
Pennsylvania	377	32	409	11	133	82	226	226	17	243	5	17	136	49	5	88	78	23	25	6,866
Rhode Island	31	6	37	2	17	11	30	17		17		1	10	6	1	11	3	2	2	545
South Carolina	20	3	23		5	1	6	3		3				5				2	8	662
South Dakota	9		9		13	2	15	4		4				2		3				302
Utah	17	1	18		3	2	5	1		1	1		10	1		1	6	1		236
Vermont	24	2	26		6	4	10	9		9		2	5	2		2	7		1	294
Virginia	73	2	75	1	20	9	30	28		28	1		22	4		8	9		2	1,726
Washington	20	3	23		31	16	47	23	1	24			11	2		17	8	1	1	724
West Virginia	30	1	31		14	6	20	31		31	1		11			8	4	4	1	773
Wisconsin	88	5	93	2	31	34	67	48	1	49	2		20	6		41	16	5	3	1,596
Dist. of Columbia	34	3	37	4	12	22	39	10		10	1	1	17	3		13	13			893
Line Total	2570	270		154	1322	1144		1417	128		45	102	963	354	48	720	662	238	336	62,820
Group Total			2840				2620			1545										
Arkansas, 1931	3	2	5	1		2	3	3		3			10			4	2			490
California, 1931	77	64	141	28		379	407	116	47	163	105	14	166	81	8	207	122	30	99	10,048
Connecticut, 1931	50	22	72	6		67	73	25	6	31	11	8	50	22	6	61	39	18	8	2,252
Delaware, '31	3	4	7			8	8	9	3	12			1	1		6	7		4	344
Florida, 1931	20	16	36	1		14	15	13	4	17	5	2	33	4	1	24	9	4	4	1,455
Georgia, 1931	16	14	30	2		43	45	13	2	15	7	2	22	14	1	40	8	3	3	1,718
Idaho, 1931	4	3	7			5	5	9	2	11	7		8	2		12		1	3	352
Illinois, 1931	124	64	188	13		181	194	126	29	155	27	9	159	60	15	205	110	27	41	7,597
Indiana, 1931	79	35	114	3		119	122	95	12	107	12	4	52	28	26	58	25	7	14	4,081
Iowa, 1931	34	22	56	3		52	55	72	12	84	13	2	20	15	4	40	13	10	24	2,574
Kansas, 1931	27	15	42	2		19	21	33	4	37	2		10	4	2	27	2	10	11	1,403
Louisiana, 1931	15	7	22	1		23	24	11	3	14	5		1	11	1	47	6	3		1,243
Maryland, 1931	36	20	56	1		45	46	23	3	26		4	32	14	1	46	20	11	13	2,037
Michigan, '31	164	68	232	3		75	78	71	13	84	50	2	105	58	7	78	78	41	38	6,393
Minnesota, 1931	16	11	27	1		38	39	41	12	53	2		44	21		25	22	3	14	2,105
Missouri, 1931	54	23	77	5		41	46	65	18	83	2	2	45	31	22	77	36	12	42	3,816
Montana, 1931	5		5			5	5	6	1	7	1	4	2	4		6	2	2	5	317
Nebraska, 1931	8	3	11			32	32	37	9	46	4		26	5	3	13	5	3	1	1,322
N. Hampshire, '31	13	9	22	3		21	24	17	7	24	5	4	11	6	2	23	13	4	4	807
New Mexico, 1931	1	1	2			1	1	2		2				1		3			3	197
New York, 1931	302	156	458	30		477	507	292	153	445	53	78	252	146	36	552	339	72	110	14,972
N. Carolina, 1931	22	18	40	2		23	25	21	1	22	5	1	10	4	1	6	12		6	2,093
N. Dakota, '31	5	3	8			8	8	16		16	5		3	1	2	3	1		6	448
Ohio, 1931	124	56	180	6		151	157	154	42	196	27	11	123	66	25	134	85	13	56	6,826
Oregon, 1931	4	6	10			23	23	11	3	14	4		20	3		24	2	8	8	825
Pennsylvania, '31	210	81	291	13		195	208	252	62	314	30	27	185	119	67	278	170	32	56	10,594
Rhode Island, '31	13	9	22	7		27	34	6	5	11	2	4	25	11	1	23	11	8	5	996
So. Carolina, 1931	15	3	18			8	8	1		1	2		2	1		1	4	1		893
So. Dakokta, 1931		2	2			12	12	10	3	13	3			4		4	2		5	525
Utah, 1931	9	14	23			16	16	8	2	10	3		14	6	2	15	4	1	3	487
Vermont, 1931	14	11	25			10	10	14	2	16	3		6	3		11	4	3	3	433
Virginia, 1931	43	25	68	6		34	40	47	12	59	3		17	21	5	32	20	3	7	2,662
Washington, 1931	10	10	20	2		66	68	26	6	32	11	2	17	7		40	5	6	19	1,365
W. Virginia, 1931	27	9	36			23	23	44	2	46	6		26	4	3	24	13	5	3	1,215
Wisconsin, '31	69	29	98	3		72	75	78	13	91	20		52	26	5	110	22	13	13	3,130
Dist. of Col., 1931	35	5	40	2		30	32	13	4	17		1	53	14	5	31	24	1	11	1,802
Line Tot'l, '31	1651	840		144		2345		1780	497		435	181	1602	818	251	2270	1237	355	642	99,817
Group Tot'l, '31			2491				2489			2277										

Institutional Advertising Campaign of Louisville, Ky., Dealers Attracts Attention

(Continued from Page 7)

considerable sum of money and continues to be such as long as it is usable, and called attention to need of proper safeguards in lubrication, tightness of all nuts and bolts, and feeling of security on long trips.

"Lowered Costs of Automobile Service by the Dealer Who Sold It," was another topic discussed, with statement made that the listed dealers and distributors had secured greater efficiency, greater efficiency had been brought about in service departments, permitting lower costs for service, which was pointed out as "in keeping with the times."

Under the heading "Facts Worth Considering by All Automobile Owners," it was stated: "As leaders in the world of manufacturing and selling, the automobile industry has set the pace for 1932 with values never before attempted. Likewise the representatives of the industry, the automobile dealers and distributors of Louisville have definitely gone on record as leaders in the movement for better automobile service to the owners."

In one piece of copy it was stated that $600,000 had been invested in machinery, tools and equipment of the dealers listed, to provide a better service for the owners.

The argument was also made that "specialized automobile service is an assurance of owner satisfaction," and common sense would indicate that expert mechanics in service departments of authorized representatives of the car manufacturer would know more about that particular car than garages or service stations depending upon the repairs of all types.

These were the principal arguments brought out in the campaign. It wasn't designed so much as a knock on the general repair shops as it was an argument for better service from an accredited dealer or distributor, recognized by the producer of the car as a sound representative, and who has the facilities, equipment and mechanics trained for specialization on that one car to do the work. Here and there through the campaign many references were made to misuse of junk parts, taken from graveyards, wrecked or burned cars, or parts that are not standard.

While some of the material was nothing more than stuff that has always been preached in the trade, still it is necessary to get this information over to the owner. There are always new owners coming up, as new generations of owners are developed, and what may be old to the first, or even the second generation of car owners, may be new to a lot of the newer owners.

It has been intimated that if business conditions were better and new and used car sales more active, dealers would have considered a program favorably for continuing this service series of advertisements for more than the twenty-one weeks that it was run.

J. Garland Lea, secretary of the dealers' association, remarked that a number of the dealers had remarked to him that they felt that the effort was well worth while, and would prove of benefit to dealers elsewhere, who are not getting as much work on cars they have sold, within their own service departments, as they should.

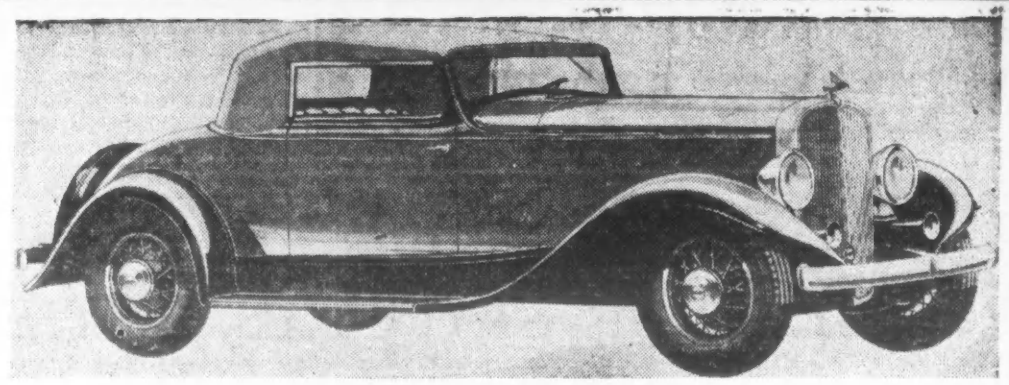
One of the best of the series was devoted to safety of the family, demanding safe motor operation, due to the speed demanded today from any automobile calling for strictest attention to mechanical make-up, and that the careful driver will sense his responsibility to his friends and family by having his car checked at regular intervals by experts.

The point was also made that virtually every car operated on the streets of Louisville was purchased from one of the well established local dealers in which the buyer had sufficient confidence in the company as well as the car to invest a large sum of money for personal transportation, representing a confidence in dealer integrity, long establishment, service men of ability, men who knew the car and where charges are most fair.

A play was also made on consistently lower prices on all automobile service work, using uniform charges for specific operations, and also on the fact that money is saved in many ways by having the car serviced by the dealer responsible for its performance to the owner to whom he sold it.

The United Motors Corporation had reprinted and distributed for its own use, with merely its own name shown, one of the advertisements featuring millions of dollars wasted by mechanical inefficiency.

Get Wise
To The Possibilities for Better Automobile Service
EXPERT SERVICE
Take Your Car to the Dealer Who Sold It to You.
Your Car Dealer Knows Your Car Best, Why Not Take It To Him For Service?
GENUINE FACTORY
EXPERT MECH
DEALERS ARE
SERVICE
For Expert Service Take Your Car T
"In Keeping With These Times"
LOWERED COSTS
of Automobile Service
By the Dealer
Who Sold You the Car
You are assured of COURTESY and EFFICIENCY
Plus Lowered Prices By Dealers Listed Below
United Motors Corp.
Broadway Motor Sales Co.
Van Spalding Co.
Universal Car Co.
Ohio-Johnson Motor Co.
Schwarz, Clifford & Scott
Weir Motor Co.
Edwards Motors
Standard Auto Co.
Prince Wells Co.
Fidelity Motor Co.
Borne-Peace
Lyman Motor Co.
Studebaker Sales Co. of Ky.
Sim B. Bowman Co.
Louisville Motors
Stutz Motor Co.
Monarch Auto Co.
Packard Louisville Motor Co.
Bonnaire-Hermann
For Expert Service Take Your Car To the Dealer Who Sold It To You



Franklin Olympic Convertible Coupe

Hit the Line and Get the Demonstration

(Continued from Page 3)

"Demonstration Pays" contest, which concluded several weeks ago. But while we are considering this subject of the importance of demonstrations, it will not be amiss to note again what the contenders in this contest did and how well demonstrations paid in cold cash. Hear what Rockne P-E-P had to say:

Although the contest was judged on only two qualifications—originality and publicity value—many of the dealers entering gave facts and figures on the actual results they had received from their efforts.

These figures are startling—and again prove the truth of the statements that Demonstration Pays—and Pays—and Pays!

Just read these! Twenty-five of the leading entries in the contest made 4,715 demonstrations during the period of June 10 to July 10. Over 870 new prospects were secured. And — most important of all — 157 new cars were sold!

Nor do these figures give the real state of affairs! Many of the twenty-five dealers did not report on demonstrations. Others reported only on demonstrations and sales and did not mention the many new prospects they surely secured. Still others—who by their orders for new cars show they did an excellent job, reported no sales at all on their entries—simply because these figures were not specifically requested. And, mind you, the demonstrations reported were actual ones—not just "rides around the block." One dealer gave "rides" to some 800 or 1,200 people, but he recorded only 192 of these as actual demonstrations!

In other words—if we were able to get exact figures on demonstrations, prospects and sales from every dealer these figures would probably be increased from 50 to 100 per cent!

But even so—let us average the results from the partial figures available. Twenty-five dealers each made, on the average, 188 demonstrations, got thirty-five new prospects and sold six new Rocknes.

PENNSYLVANIA FACES RETALIATION FROM NEIGHBORING STATES

Philadelphia, Oct. 21.—Threats of retaliation from Maryland and New Jersey, unless Pennsylvania should rescind the recently enacted motor vehicle legislation limiting to fifteen days the reciprocity provision for trucks registered in other states, were aired at a meeting of the Philadelphia chapter of the Pennsylvania Motor Truck Association, Inc., at the Elks' Club this week.

New Jersey and Maryland regard the passage of that legislation as "Pennsylvania's backward step," in that it sharply restricts the movement of out-of-state commercial vehicles and buses, which are not licensed in Pennsylvania. Private cars and trucks operated without profit by farmers' co-operative associations, however, continue under full reciprocal arrangements.

J. G. Whinney, president of the chapter, pledged the group to full co-operation with safety programs being conducted by Pennsylvania highway patrolmen and by Burton W. Marsh, city traffic engineer, who scored lax enforcement and "tag fixing" as destructive to public respect for all traffic laws.

HORNING INSPIRES N. Y. S. A. E. WITH RESEARCH TALK

(Continued from Page 1)

systematic fashion, analyzing them and applying the conclusions reached. He added that "Research is just common sense gone 'high-brow.'"

That attitude of mind which questions everything was praised by the speaker, who pointed out that the by-products of research, for those who take this attitude more than pay for all research activities. The by-products often prove more valuable than the attainment of the original object of the research, as was indicated by the accidental discovery of X-rays, which in turn led to the discovery of radium and ultimately to a complete revision of accepted theories of matter.

Mr. Horning, as well as those who discussed his paper, laid much stress upon the value of co-operative industrial research, such as that which has been undertaken jointly by the society and the automotive and petroleum industries with the advice and assistance of the Bureau of Standards. This research, he indicated, has resulted not alone in great improvements in automotive engines, but in similar improvements in fuels as well as in a large increase in the yield of motor fuel from crude oil, with savings measured in hundreds of millions of dollars.

In describing some of the results and by-products of research in the work of his own company, Mr. Horning mentioned, among other benefits, the discovery of a new alloy cast iron which has a tensile strength of 60,000 pounds per square inch and is not only much better suited for cylinders and other parts of engines that are normally cast, but can be used also for camshafts and crankshafts. Among other advantages, this cast iron is very hard and wear-resistant, though readily machined; is free from the growth in use which has given much trouble with some other irons; has high heat conductivity and can be cast in both thick and thin sections without porosity or chill which give trouble in the ordinary forms of gray cast iron formerly much used.

When questioned about the composition and other details in reference to this alloy iron, Mr. Horning indicated that pending patent applications made it inexpedient for him to give this information. He did intimate, however, that molybdenum is among the alloying elements used and that it tends to disperse the free graphite in the iron, which in turn helps to give it the desired qualities.

As a practical example of the direct return from research, Mr. Horning stated that at one time the production of engines in his own plant had been boosted from 25 to 300 per day, largely because research had shown how to soften or minimize detonation of fuel in the cylinders. He also indicated that recent experiments had shown that a mere change to a new form of cylinder head on one make of engine used in one large-production light car would increase its output from 44 to 100 horsepower if the crankshaft and certain other parts were large enough to carry the added load.

Dr. Harvey Davis, president of the Stevens Institute of Technology, took a leading part in the discussion of the paper and registered his agreement with all that Mr. Horning had said about research. He mentioned the possibility that there is sometimes danger that the by-products of research may be allowed to "block traffic" but showed, that as in the case of studies which resulted in the commercial production of helium, which grew out of an apparently minor piece of routine research, the by-products often prove more valuable than the major objective. Dr. Davis made it clear that the modern industrial executive is not properly educated unless he is "shot through and through" with the spirit of scientific research. The lack of this spirit, he said, has resulted in the ruin of many business enterprises. Immediate dividends are realized from the development type or research, but this should not prevent the fostering of the fundamental type, as industry continually needs new ideas.

An encouraging sign that business and industry are coming to appreciate the value of research, Dr. Davis indicated, resulted from a survey made by the National Research Council, which showed that more than 50 per cent. of the industrial organizations canvassed spent more in research work during the lean year of 1931 than during the boom year 1929, and that 70 per cent. spent as much more. The same survey showed that in boom years much research is directed toward reduction in production costs, whereas in slack years there is a swing toward the development of new products and processes.

Dean J. W. Barker of Columbia University in his discussion recommended the study of Faraday's "Experimental Research" as an excellent text for the student of research. He also outlined one research investigation in which a by-product study of the effect of close supervision of certain industrial work netted one manufacturer no less than a $50,000 monthly saving.

J. A. C. Warner, general manager of the S. A. E., paid a high tribute to the work which Mr. Horning has done in promoting research in co-operation with the automotive and petroleum industries, and in making the results of his own company research available. He said that most research men are too modest about their accomplishments and so fail to sell executives on its value. Too often, he indicated, management permits research work to degenerate into mere trouble-shooting, or so burdens men supposedly employed for research with trouble-shooting that research programs are strangled.

Others who joined in the discussion included Sir Ernst Petters of England and Frank C. Mock of the Bendix Research Corporation. A. L. Beal of the Vacuum Oil Company was elected section representative on the national S. A. E. sections committee, and T. C. Smith of the Bell Telephone System the section representative on the national nominating committee of the society.

STUDEBAKER-ROCKNE-PIERCE CAR EXPORTS AHEAD OF 1931 TOTAL

South Bend, Ind., Oct. 21.—More passenger cars have been exported to date this year by the Studebaker-Pierce-Arrow Export Corporation than were exported during the entire twelve months of 1931, it was announced here today.

WALSH GETS CHRYSLER CANADIAN ADVERTISING

Detroit, Oct. 21.—The Walsh Advertising Company in the Guardian Trust Company Building, Windsor, Ont., has been appointed to handle all the Chrysler Corporation advertising activity in Canada.

It is also announced that Chrysler business in Canada is developing in an extremely satisfactory manner.

CLASSIFIED ADVERTISEMENTS IN THE AUTOMOTIVE DAILY NEWS BRING RESULTS